

COAL AGE

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Number 3

Coal Mining Results in 1917 and Present Outlook

The production of coal in 1917 was the greatest in history.

The total output was..... 633,401,789 short tons

An increase of..... 43,303,614 " "
Or 7.3 per cent. over 1916.

ANTHRACITE production was..... 99,604,960 " "
Or 12,026,467 tons more than in 1916.

BITUMINOUS production was..... 533,796,829 " "
Or 31,277,147 tons more than in 1916.

COKE output was..... 55,286,403 " "

Beehive coke decreased; byproduct coke increased.

YET THERE IS A SHORTAGE of fuel, particularly in the East. Where has the increased tonnage gone? Why is the situation so critical here in a country that contains only one-seventeenth of the world's population and still produces one-half of the world's fuel?

Of last year's record output only about two per cent. of the total production passed out of the country. We supplied almost nothing to our allies.

Due to increased efficiency in firing and less waste generally, several million tons were saved by domestic consumers. Absolutely no coal has gone into storage. Therefore, the only answer is that industrial activity in America in 1917 was far above normal, due to the demands of the war.

Consumers in the Northwest, or Lake regions, received about 3,000,000 more tons last fall than they did one year ago. The coal supply in the Eastern states has suffered as a consequence.

The railroads of the country took 15,000,000 tons more, the munition plants at least 10,000,000 tons more, and the Government consumed 6,000,000 tons more. The total of these requirements alone accounts for the disappearance of the greater part of the year's increase in output.

THE ANTHRACITE MINES accomplished wonderful results. In the face of a 16 per cent. labor shortage, the production of anthracite increased 12,000,000 short tons, or about 14 per cent. The Pennsylvania bituminous mines produced the same tonnage as in 1916, while West Virginia showed a decrease in output. Illinois recorded the largest production in its history and succeeded in replacing West Virginia as the second largest coal producer. Alabama, Ohio, Indiana, Colorado and

most of the Western states showed increases. If the Eastern states could have worked more days, the fuel situation in Pennsylvania, New York and New England would not now be so serious.

All through the year transportation has been the point of attack. During the hottest days of the past summer the cry of the operators was for cars, not miners. There are sufficient mines and plenty of operating equipment, but these things are ineffective if there are no cars into which to load the coal. It is further true that the trouble is not so much car-shortage as it is inefficient car-service.

THIS COUNTRY has learned a lesson. We know now that our rich stores of coal are of no use unless they are in the bins of the consumer. We know that a man in the mines is as essential as a soldier in the trenches. We know now that if our Government were to assume control of all our coal mines, the Federal power over industry would be absolute and laws would be of little avail. We know also that the result of our present unpleasant experiences will be to relieve the nation's industries from a fuel shortage next winter, unless we have bunglers on the job.

The outlook for the year 1918, so far as the mining end is concerned, is extremely favorable. The Government must exempt miners from draft. The Federal railroad director must regulate so as to insure the immediate unloading of all cars. The miners' union must lift all restrictions that limit either hours or tonnage of the individual workman. If these things are done, the output in 1918 will cover all requirements, and the United States with plenty of fuel will bring the world war to a successful conclusion.

Activities in Different Coal-Producing States in 1917

THE following reports, written especially for this annual review number of *Coal Age*, were prepared in practically all cases by the chief coal-mine inspectors of the various states. There are also several supplementary reports which review briefly some of the high spots in the general development work of the industry during the year. The past twelve months has been the most momentous year in the history of coal mining. The unusual conditions were created by the World War into which this nation has been plunged. At the present time it is opportune to call attention to the desirability of having all reports of production expressed in net (short) tons. In some cases returns of

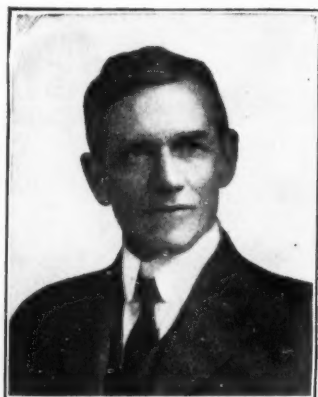
output are given in long tons, and in other cases the short ton is used. It is also confusing to have the annual reports end at different periods. In some instances the reports are for the fiscal year ending June 30; other states end their fiscal year in October; while still other states cover the year up to Nov. 30. It would be much more satisfactory to all concerned if each and every report covered the calendar year. We suggest that the inspectors lend their efforts to bringing about such a standardization. One thing that stands out in the majority of the reports is that the tonnage produced over the entire country would have exceeded all expectations had the car supply been equal to the demand.

Alabama

By C. H. NESBITT

Chief Mine Inspector, Birmingham, Ala.

TAKING into consideration the increase in 1916 over 1915, which amounted to 2,967,794 tons; that 199 mines were being operated in 1916, whereas in 1917 there were working about 297, and a greater number of coke ovens; recalling also the fact that the commercial coal market was inac-



C. H. NESBITT

tive during 1916 until the last quarter, while the whole of 1917 showed great activity in all lines, notwithstanding interruptions in the way of a car shortage, and a temporary lull in mid-summer due to labor troubles; I do not think it excessive to approximate the production for 1917 at 21,000,000 tons, as against 18,234,625 in 1916.

During 1917, the number of men killed in Alabama was 108; this is 10 less fatalities than in 1916.

Year's Developments in Alabama

By H. S. GEISMER

Keiser-Geismer Engineering Co.,
Birmingham, Ala.

SEVERAL interesting facts stand out in reviewing the coal-mining industry in Alabama for 1917. First, a marked decrease in the ton-

nage produced by coal mines using convict labor, this being due to the fact that ever since Alabama adopted prohibition there has been a gradual falling off in the number of convictions by the courts. In consequence, many of the jails in Alabama are empty and few new arrivals are noted at the convict camps. This must not be interpreted to mean that prohibition has caused a decrease in the total coal tonnage produced, as quite the opposite is true.

Second, along the fringes of the coal-mining area where the coal seams come to the outcrop a large number of wagon mines have been opened, and the labor for these mines has been furnished to a large extent by the near-by farming communities. Farmers owning teams are contracting for the hauling of the coal, and their sons and laborers have gone to work as miners. Present indications are that this will affect the 1918 crops to a considerable extent in some localities, as the men who have gone to work at the mines are earning more than they can earn on the farms and it is doubtful if they will return to the farms in time to take care of the 1918 crop.

Third, several large stripping operations have been started, and if the present price of coal is maintained through 1918 quite a large tonnage will be produced by them.

Fourth, the Southern Railway Co. has begun development on a large tract of coal land and early in 1918 will be producing coal. This is the first mine in Alabama to be opened by a railroad company.

Strange as it may seem, the Alabama output for the last few months of 1917 has not been much affected by a shortage of labor, by price fixing, or by shortage of railroad cars, and the coal mines have been able to supply at least 95 per cent. of the demands of their regular customers in spite of the extraordinary demands of the railroads and the other customers. Most of the mines in the state are now producing about as large a tonnage as they can handle with the equipment

they have. It is almost impossible to buy mining equipment with any definite promise of delivery, and in consequence most of the mining companies have not purchased the equipment necessary to an increased output.

The railroad car supply is said to be better in Alabama than in any coal-producing state of the Union with the possible exception of Virginia. This is due no doubt largely to the fact that the railroads take about one-fourth of the entire output of the state for their own consumption.

The shortage of coal at most of the domestic coal yards in the state has been the cause of much unfavorable comment from the newspapers, chiefly directed against the coal operators. In fact, this phase of the coal situation has practically monopolized the newspaper space set aside for the coal-mining industry.

HOW ALABAMA OUTPUT IS DIVIDED

This shortage at the coal yards is easily explained, however. The output of coal in Alabama is divided about as follows: One-half the output is used by the coke- and iron-making corporations; one-fourth the output is used by the railroads, and the balance is divided between steam and domestic users. Most of the domestic coal is purchased by the consumers during a few months in the fall, while the production of domestic coal has to be distributed pretty well over the entire year.

In order to meet this condition, the coal yards generally begin to stock up in April and by fall have their yards filled with coal. This stock, with the daily shipments which they receive during the balance of the year, enables them to take care of the trade. This year, because of the high prices and the uncertainty of the market, few of the coal yards contracted for their normal requirements early in the year and, after waiting until the middle of the summer, found that the mines had sold their outputs and there was little coal to be had. The railroads were constantly increasing their coal con-

sumption—in fact most of them doubled their normal requirements—and this demand absorbed a great deal of the free coal that might have been available for the coal yards.

To make matters worse, the prices fixed by the Fuel Administration in the fall made it more profitable for the coal mines which had been producing lump and slack to sell their entire output on a run-of-mine basis, and for that reason even the amount of coal suitable for domestic purposes fell below the outputs of former years. Another factor in the domestic coal situation has been the withdrawal from the market of two steel companies which have found it necessary to use all the coal they could produce for gas-making purposes at their own plants.

SUMMARY OF CONDITIONS

Summarizing the conditions for the year, three things may be said to have somewhat affected the possible outputs: First, early in the year there was a car shortage on two of the railroads serving the coal fields; second, about the middle of the summer the United Mine Workers of America attempted to organize all the camps, and for two months there was much unrest among the miners, which resulted in a noticeable reduction in outputs at many of the mines; third, during the last three months of the year some of the less thrifty among the miners and mine workers discovered that it was not necessary to work full time in order to make a living, and as a result many working places were idle two and three days a week. This condition has been found hard to cope with, and upon its successful solution depends in a measure the possibilities of increasing the coal output for 1918 over that of preceding years.

In order to take care of increased demands two of the large iron-making corporations had double-shifted their mines most of the year, and the results have been satisfactory.

Several coal companies which had produced their own electric power in the past contracted with the Alabama Power Co. for power during 1917. As the Alabama Power Co. produces its electricity by water power, this move has increased the available coal supply. Several mining companies which have not used electricity in the past have also contracted for electric power during the year; the number would undoubtedly have been larger if it had been possible to obtain deliveries on electrical equipment. As it is, the Alabama Power Co. has contracted for more power to coal-mining companies during 1917 than in the two previous years.

There has been considerable discussion about the quality of the coal produced, but it is doubtful if anyone has refused a car of coal because of its quality. This must not be taken to mean that such rejection could not have been justified; on the contrary, rejections might often have been

enforced, but poor coal is generally better than no coal.

The coke-producing companies who wash their coal before coking and who are thus able to check qualities have found that they have larger washer losses to contend with, and in a corresponding measure all consumers of coal undoubtedly have suffered from an increase of ash in their fuel; this is a condition that cannot be remedied so long as labor is scarce.

Judging by results in Alabama, it is doubtful if any of the rulings of the Fuel Administration have been of much assistance. Take the case of the wagon mines for example. It has been ruled that they cannot add the price of their hauling to the Government's fixed price unless their coal is delivered direct to a consumer, the idea being no doubt to encourage them to haul this coal to towns and cities and thus relieve the domestic situation. But since railroads are consumers (anxious consumers at that), and furthermore since railroads are generally near to these wagon mines, the railroads have been offered and have accepted practically all the wagon-mine coal.

Alaska

BY SUMNER S. SMITH

Alaska Engineering Commission,
Eska, Alaska

A GROWING activity in the Alaska coal fields and an increased production of approximately 500 per cent. over last year's output was witnessed in Alaska during the past year. A number of new operators produced small amounts of coal from ten-acre free-use permits, and many of the former operators greatly increased their outputs. Several leasing units in the Matanuska field have been leased and are now under exploration. In the Bering River field private interests have continued construction of a standard-gage road to their holdings on Canyon Creek and are reported to have the mine opened in such a manner that shipments can be started at an early date. The Matanuska branch of the Government railroad has been completed to Unit 12 on the Chickaloon River, with a spur 2.7 miles up Eska Creek and a preliminary survey on Moose Creek—some five miles to Units 2 and 3. Unit No. 12, in the Matanuska field, was withdrawn last year for the use of the Alaskan Engineering Commission, although work was not commenced at that point till this summer, owing to the difficulties of getting in supplies before the completion of that portion of the railroad. Unit 7 was leased early this spring to the Eska Creek Coal Co., which shipped 7783 tons, one-sixth of which went to the local market and the balance to the Alaskan Engineering Commission. As this corporation was not financially strong it transferred its holdings to the commission, which took over the property to insure a regular supply of fuel.

The largest producers from the ten-acre permits were the Doherty Coal Co., the Cache Creek Dredging Co. and John A. Herbert. The first produced about 19,500 tons, of which 500 was sold to the local trade in Anchorage and the balance to the commission. The second mined about 5000 tons, which was used during the active season on the company's dredge on Cache Creek. The last-named produced 4300 tons at Bluff Point, on Cook Inlet, which was sold to the canneries and towns along the Inlet. These figures are all in long tons. George Wallin, of Candle, mined about 500 tons on his ten-acre lease near that point. The commission produced approximately 18,500 short tons from the Eska Creek mine and 300 short tons from the Chickaloon property, which has been taken out in development work.

The total output from the entire territory probably closely approximates 60,000 tons, as there were some two dozen operators on the free-use ten-acre areas who mined small amounts for their own use.

In the Matanuska field a group of men headed by Henry Baxter, of Anchorage, has commenced development on Units 2 and 3, while another group has started work on Units 10 and 11 under the management of Lars Netland, of San Francisco.

Arkansas

BY ROBERT BOYD, JR.

State Mine Inspector, Fort Smith, Ark.

PRODUCTION of coal for the State of Arkansas for the year 1917 is about 1,867,802 short tons, of a value of \$3,675,950. The number of producing mines in the state is 115, employing 5345 miners in all classes. The estimated value of the powder purchased by the miners in 1917 is \$168,132.

Colorado

BY A. R. TIBBITTS

Office of State Inspectors of Mines,
Denver, Colo.

IN COMMON with that of the whole country the coal industry of Colorado has been under extraordinarily heavy pressure during the year 1917. With the increasingly insistent demands for enlarged output of the basic industries; with a scarcity of labor incident to war; with serious car shortage interfering with steadiness of production and with constantly mounting wages and other costs, the situation has at times reached a critical stage in which the industry was saved from disaster only by the intelligent cooperation of operators and workmen.

Coal prices in Colorado were increased during 1917. Some increases were naturally necessary as a result of increasing costs of production. The following figures show the range of wholesale prices for the best grades of domestic coal, both lump and nut, now in effect at the mines in the southern

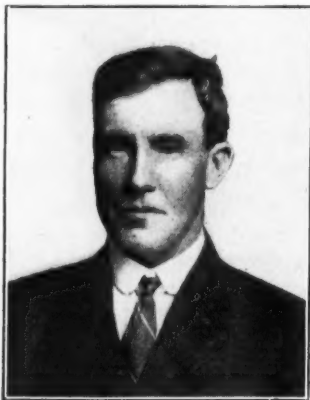
field, Routt County, and the northern field:

Southern Field		Per Ton
Lump		\$4.45
Nut		3.50
Routt County		Per Ton
Lump and nut		\$4.45
Slack		1.90
Mine-run		3.45

Prices for the best grades of lignite coal sold at the mines:

Northern Field		Per Ton
Lump		\$3.95
Slack		\$1.00 and 1.70
Mine-run		2.75 and 2.90

The foregoing prices, effective Nov. 1, were authorized by the Government in consideration of a specified advance in wages, and are the maximum prices for which coal may be sold. However, the great bulk of the coal mined in these three districts is sold as steam coal at very much lower prices, specified by old contracts not expired and which cannot be violated. Some of the operators maintain that this 45c. advance in price was not equal to the increased cost of production.



JAMES DALRYMPLE
State Mine Inspector, Colorado

It has been the policy of the Colorado operators to encourage the storage of those grades of coal which could be kept without loss, thus equalizing the demand throughout the year and

TABLE SHOWING WAGE SCALE IN MINES OF THE NORTHERN FIELD AND ROUTT COUNTY, NOVEMBER, 1917

Northern Field		Per Ton
Miner (Boulder and Weld Counties)		
Machine		\$0.54
Pick		\$0.69 to .75
Routt County		Per Day
Driver		\$4.00
Timberman		4.00
Laborer		3.84
Routt County		Per Ton
Miner, Pick		\$0.75
Routt County		Per Day
Miner, Pick		\$5.28
Driver		5.28
Timberman		5.28
Laborer		5.28

keeping the mines in operation. In furtherance of this policy the producers have made unusually low figures to retailers throughout the summer months.

TABLE SHOWING COMPARATIVE WAGE SCALE IN COAL MINES OF THE SOUTHERN FIELD, JANUARY, 1917, AND NOVEMBER, 1917

	Wage Scale, January, 1917, Per Ton	Wage Scale, November, 1917, Per Ton	Per Cent. Increase Over January, 1917
Miner (Trinidad District)	\$0.58	\$0.78	\$34.49
Miner (Walsen District)	.63	.83	31.75
Miner (Canon District)	\$0.73 .78 .83	\$0.99 1.04 1.09	\$35.62 33.33 31.33
	Per Day	Per Day	
Driver	\$3.25	\$5.25	61.54
Timberman	3.30	5.30	60.66
Laborer	2.15	4.15	93.02

Wage increases throughout the year amounted in some cases to almost 100 per cent. The accompanying tables show wages paid coal miners and certain classes of day workmen in the three leading coal-mining districts of Colorado. Approximate wage scales are in effect in other parts of the state.

The Colorado Fuel and Iron Co. has had three successive wage advances during the year, which have been negotiated between the company officers and the miners' representatives under the provisions of the Industrial Representation Plan. In other instances the wage scale was amicably negotiated between the representatives of the companies and the United Mine Workers, or the wages were automatically advanced by companies negotiating only individually with their workmen.

November earnings at four of the largest southern Colorado mines showed that at the mines the average pay of all miners who worked full time was \$174.33.

Many of the Colorado coal operators state that the increase in cost of production as a result of increasing prices of necessary supplies, many of which have advanced more than 100 per cent. (in some instances several hundred per cent.), has amounted to almost as much as the increase due to the advance of wages.

Numerous local strikes occurred at the coal camps, but none were serious and were speedily adjusted by the Colorado Industrial Commission.

The following table is a brief summary of the year's operations at the mines:

COAL PRODUCTION OF COLORADO BY COUNTIES FOR 1917

Counties	Total Production
Boulder	1,261,621
Delta	103,060
El Paso	366,920
Fremont	866,064
Garfield	108,180
Gunnison	647,070
Huerfano	2,355,751
Jackson	86,699
Jefferson	127,644
La Plata	136,789
Las Animas	4,449,743
Mesa	206,734
Moffat	500
Montezuma	998
Montrose	1,513
Pitkin	21,463
Rio Blanco	4,710
Routt	1,065,007
Weld	622,658
Total	12,433,129

There were many fatal accidents, the Hastings explosion alone cost the industry 121 men. This increase of loss of life may be attributed to several causes. Labor being scarce, the workmen feel their independence and pay little or no heed to the rules adopted at the mines for the protection of life and limb. The mine officials on the other hand, in order

to keep up the maximum production, are afraid to enforce these rules by dismissal, knowing that any discharged employee can find immediate reemployment at the next mine. Another cause that contributed largely to the increased rate of fatalities was prompted by the large earnings of the miners and other underground workers, inducing many men from other callings to enter the mines, and who, having no experience in coal mining, were unable to take care of themselves.

The average number of men employed in and about the mines in 1917 is 13,570, the total number of days worked per mine being 204.5.

The coal production of Colorado in 1917 was the largest ever produced in the state. In 1910 the tonnage reached 12,104,887 tons, which has not been exceeded until 1917. Had it not been for the car shortage and labor scarcity, the production would easily have reached the 13,500,000-ton mark.

Illinois

BY MARTIN BOLT

Assistant Director, Department of Mines and Minerals, Springfield, Ill.

DURING the year 1917 the coal mines of Illinois will produce a larger tonnage than during any preceding year in the history of coal mining in the state. There are several reasons why the production of coal will be much greater, or should be greater, than in any preceding calendar year. The figures given must necessarily be estimated, because of the fact that the report of the Department of Mines and Minerals is for the fiscal year ending June 30, 1917.

There were 324 shipping mines in operation during the last fiscal year. Since the close of the fiscal year a number of mines have been reopened, and the number in operation at present will exceed the figures shown in the annual report for last year. This, together with the fact that the number of mine workers has materially increased during the last year, will surely give to Illinois the largest tonnage in its history.

The coal report for the year ending June 30, 1917, gives as the production for the months of January, February, March, April, May and June 42,550,693 tons. Taking the figures as a basis, and estimating that the number of mines in operation has increased, that the number of mine workers has shown an increase, that special effort has been made on the part of the railroad companies to supply cars in which to haul the coal, we feel reasonably safe in saying that the production of coal in

Illinois for the calendar year ending 1917 will be approximately 85,700,000 tons.

These figures do not indicate what the possibilities of coal production in Illinois are; with adequate car supply, labor supply and the equipment now in operation, it is safe to say that 125 million tons or more can easily be produced.

During a single month a number of years ago the production reached approximately 12,000,000 tons. What we need in Illinois is cars in which to load the coal, and we will do our part in supplying the necessary fuel to meet the demands at present and for the future.

We have the mines; we have the men; give us the cars and we will produce the coal.

Indiana

BY MICHAEL SCOLLARD

State Mine Inspector, Indianapolis, Ind.

THE output of coal, and the mining industry in general in the State of Indiana during the fiscal year 1917, was much better than was expected at the beginning of the year. There was some time lost owing to the shortage of railroad cars and local strikes, notwithstanding which the total production from mines employing ten or more persons was 24,013,021 short tons. This is the greatest number of tons ever produced in a single year in this state from mines under the jurisdiction of this department.

The estimated production of stripping plants and of mines employing less than ten persons was 1,000,000 short tons, making a total of 25,013,021 short tons during the year. There are about 250 small mines in operation. The stripping system is used in this state where the overburden can be removed economically by steam shovels or other mechanical means, thus exposing the coal. There are ten of these plants in operation at the close of the fiscal year. From 14 to 40 ft. of overburden is removed from Nos. 3, 4 and 5 bituminous coal, which ranges from 5 to 7 ft. in thickness. The daily capacity of some of these plants is 800 tons; others produce from 2000 to 15,000 tons per month.

Of the coal produced, 23,567,414 tons was bituminous and 445,607 tons was block coal. This exceeds 1916 production by 5,774,430 tons. In the production of the coal there were 183 bituminous mines in operation and 20 block-coal mines, making a total of 203 mines under the jurisdiction of this department. The average number of days the mines were in operation were: Bituminous mines, 223 days; block-coal mines, 226 days. There were 705,306 kegs of black powder and 62,201 lb. of permissible powder used in producing this coal.

Of the bituminous coal produced, 13,140,495 tons was consumed in this state and 10,827,945 tons was shipped out of the state; 23,171 tons of block coal was consumed in the state and 422,446 tons

was shipped to other states. The principal markets for Indiana coal are Chicago and Indianapolis. Owing to the great demand for coal, it was impossible to know the exact average selling price before the Government set a price on coal at the mine.

The average number of employees for the year in block-coal mines was 757, while the average number of employees in bituminous mines was 23,163, which is an increase of 620 over last year. At the close of 1917, in all probability, there were 25,000 men engaged in the production of coal. The total wages reported is \$23,567,937.75, making an average earning, per mine employee, of \$985.60.

During the fiscal year ending Sept. 30, 1917, there were 27 new mines opened in the state. Fifteen of these were hand, or pick, mines and twelve were machine mines. Three of the pick

mines were block-coal mines. These mines were all located in nine different counties. There were five mines abandoned during the fiscal year, one in each of the following counties: Martin, Owen, Perry, Spencer and Warrick. The abandoned mines were all small producers. There were 61 fatal accidents to persons employed in the mines and five fatal accidents to persons employed on the surface. The number of tons produced per fatality was 363,834. There was an average of 23,940 persons employed about the mines, which would be 2.75 killed per thousand employed. This fatality is greatly deplored by all parties connected with the mining industry. Mining is one of the most hazardous employments and it is especially important that miners should know the dangers met with in coal mines. A surprisingly large number of fatal accidents occurs each year at the working faces of the mine, caused by falling slate. Many of these are caused by faults or slips in the roof which are hard to detect, while a large per cent. are caused by the lack of proper examination and timbering of the roof. In my opinion fatalities from this cause will not be greatly reduced until there is a law compelling more frequent examination of working places by the management and making it an offense for a miner not to timber his place properly. Our present mining laws are inadequate for the mining industry of Indiana at this time. Mechanical processes employed in mining have been introduced more rapidly than the safety and precautionary measures necessary to safeguard the miners from the new and additional dangers to which these new processes expose them. Since the last revision of the law, for instance, electrical power for lighting and mining purposes, electrically driven machinery, etc., have been introduced extensively for mining and hauling purposes, which means more rapid transit of coal cars to shaft bottom. This involves the installation of high-power transmission wires throughout the haulage roads and entry ways, which, in many instances, are not more than 50 in. in height. These wires are not infrequently exposed for want of proper insulation and protection. Larger and wider cars are being used,

TONS OF COAL PRODUCED AND WAGES PAID TO MINERS IN INDIANA FOR THE YEAR ENDING SEPT. 30, 1917, BY COUNTIES, BLOCK AND BITUMINOUS COAL BEING SHOWN SEPARATELY

Counties	Block	Wages Paid	Bituminous	Wages Paid	Total Production	Total Wages
Vigo	120,718	\$220,801.39	6,772,416	\$6,630,163.97	6,893,134	\$6,850,965.36
Vermillion			4,198,028	4,236,261.61	4,198,028	4,236,261.61
Sullivan			3,395,464	3,334,901.17	3,395,464	3,334,901.17
Knox			3,001,024	2,514,267.10	3,001,024	2,514,267.10
Greene			2,892,356	2,663,920.35	2,892,356	2,663,920.35
Pike			916,294	924,576.00	916,294	924,576.00
Warrick			746,026	687,329.45	756,026	687,329.45
Clay	261,490	420,179.79	394,403	416,226.48	655,893	836,406.27
Parke	63,399	97,272.06	310,742	353,686.43	374,141	450,958.49
Vanderburg			390,404	437,574.82	390,404	437,574.82
Gibson			443,190	498,650.65	443,190	498,650.65
Daviess			85,237	106,419.06	85,237	106,419.06
Perry			13,996	14,814.90	13,996	14,818.90
Fountain			7,834	10,892.52	7,834	10,892.52
Total	445,607	\$738,253.24	23,567,414	\$22,829,684.51	24,013,021	\$23,567,937.75

mines were block-coal mines. These mines were all located in nine different counties.

There were five mines abandoned during the fiscal year, one in each of the following counties: Martin, Owen, Perry, Spencer and Warrick. The abandoned mines were all small producers.

There were 61 fatal accidents to persons employed in the mines and five fatal accidents to persons employed on the surface. The number of tons produced per fatality was 363,834. There was an average of 23,940 persons employed about the mines, which would be 2.75 killed per thousand employed. This fatality is greatly deplored by all parties connected with the mining industry.

Mining is one of the most hazardous employments and it is especially important that miners should know the dangers met with in coal mines. A surprisingly large number of fatal accidents occurs each year at the working faces of the mine, caused by falling slate. Many of these are caused by faults or slips in the roof which are hard to detect, while a large per cent. are caused by the lack of proper examination and timbering of the roof. In my opinion fatalities from this cause will not be greatly reduced until there is a law compelling more frequent examination of working places by the management and making it an offense for a miner not to timber his place properly.

Our present mining laws are inadequate

for the mining industry of Indiana at this time. Mechanical processes employed in mining have been introduced more rapidly than the safety and precautionary measures necessary to safeguard the miners from the new and additional dangers to which these new processes expose them. Since the last revision of the law, for instance, electrical power for lighting and mining purposes, electrically driven machinery, etc., have been introduced extensively for mining and hauling purposes, which means more rapid transit of coal cars to shaft bottom. This involves the installation of high-power transmission wires throughout the haulage roads and entry ways, which, in many instances, are not more than 50 in. in height. These wires are not infrequently exposed for want of proper insulation and protection. Larger and wider cars are being used,

It is therefore hoped that the legislature will place on the statute books some laws that will state specifically the safeguards to be used to protect the workmen from the new and additional dangers.

The General Assembly of 1915 created a commission for the purpose of codifying the present mining laws. This commission also being authorized to recommend in its report such amendments and changes in the law as would, in its opinion, be conducive to the highest interests of safety in the mining industry in all its relations.

The commission was appointed, and consists of two representatives of the operators, two representatives of the miners and a mining engineer. They held several meetings at which they compiled a set of mining laws, which contained many recommendations to the legislature for passage. The report was signed by the entire commission and was referred to the Committee on Mines and Mining in the Senate. At a public hearing on the report, the miners' organization of District No. 11 and the representatives of the miners who were members of the commission

objected to its passage on the ground that many discrepancies had gotten into the report, and the report was indefinitely postponed in committee. As a result, there were no additional mining laws placed on the statute books in 1917.

Very few mining laws have been placed on the statute books within the last few years. As they now stand, they are inadequate for the present system of mining.

During the fiscal year there were 840 regular inspections made by the inspectors of the department, and written reports of the conditions of the mine and the recommendations made were filed with this office.

In addition to the regular inspection work, numerous calls have come to the department regarding dangerous conditions existing in the various mines. Chief among these were complaints regarding scales, ventilation, failure to provide washhouses, complaints regarding the dangerous condition of cages, the system of handling explosives and the like. All these calls were given prompt attention by our inspectors.

ACCIDENTS CAREFULLY INVESTIGATED

Sixty-six fatal accidents were investigated during the fiscal year. Conditions of that section of the mine and places where accidents occurred were carefully noted, and the evidence taken at such investigations has been filed with this office. Numerous serious and slight accidents have been investigated on the regular inspection tours, and recommendations made with the view of preventing accidents from recurring in the same manner.

Many special inspections were made of mines where gas is likely to accumulate in abandoned workings, caused by squeezes and cave-ins. Mines whose workings are approaching old abandoned mines, which contain large accumulations of gas and water, are given special attention. Escape shafts, ventilation apparatus and the like are all carefully inspected. Large mines where gas and dampers are generated are visited more frequently than mines where those dangers do not exist.

Days are spent by mine inspectors in abandoned workings in mines, climbing over falls of roof and over cave-ins, where accessible, for the purpose of ascertaining if gas has accumulated in the cavities above, which would be forced out into the workings by additional caves and be ignited by an open light and cause a disaster. Other hazardous duties of the inspectors are exploring mines after explosions, as members of the rescue parties, examining mine for fire before the ventilation is fully restored after explosions, and assisting in controlling mine fires. These are additional duties to the regular inspection work, which is that of seeing that the mining laws are complied with and the health and safety of the persons employed in the mines assured.

The movement for prevention of accidents and knowing how to protect

one's self from the dangers met with in coal mines is finding favor with the miners and operators in this state, and is encouraged by the Industrial Board of Indiana. This was demonstrated at an explosion which occurred at the Oliphant-Johnson mine in Knox County on Dec. 19, 1916, when two persons were killed, 28 were seriously burned and two died in a few days from the effects of their burns. Sixty-five miners, who were working in a section of the mine that was not seriously affected by the explosion, discovered that their escape to the surface was cut off by hot gases and afterdamps. They retreated into a pair of entries, and using what material was at hand they sealed the entries off from the rest of the mine workings, preventing the gases from getting to them, thereby saving their lives. A few hours later they were located by a rescue party and were taken to the surface in safety.

Many first-aid and rescue teams have been organized in the mining districts, many of which have been trained by the Federal Bureau of Mines in the use of oxygen apparatus, which is of great assistance in exploring mines after explosions and in overcoming fires in the mines.

Iowa

BY L. E. STAMM

Secretary, Iowa Mine Inspectors,
Des Moines, Iowa

THE year 1917 differs but little from previous years in so far as certain statistics relating to the coal industry of this state are concerned. The number of employees, the number of mines in the state and the tonnage mined varies slightly from year to year, each year usually showing a slight gain over the one preceding.

The greatest demand for the product of the Iowa mines comes during the winter months. In fact, many of the smaller local mines in the state cease to operate about Apr. 1 of each year and then resume operations about Aug. 1. In this way they operate only when there is a demand for their product. The larger mines supplying the railroad trade of the state, as well as selling coal to the commercial trade, continue to operate the entire year through. The work is hardly as steady during the months of May, June and July as in other months, as there is but little demand for commercial coal in these months and the mines hardly put in full time.

These conditions prevailing have resulted in something over 7,000,000 tons of coal being produced in this state from year to year. The number of employees varies but little, usually about 16,000 men being given employment in and around the mines of the state.

Iowa's neighbor state, Illinois, producing almost eight times as much coal, has been looking to the Iowa field to consume a part of her production. The result has been that for a number of years, up to the latter part of 1916,

all northern and eastern Iowa has for the most part been supplied with coal from the Illinois field. This has not been favorable to a large production of Iowa coal.

CAR SHORTAGE CURTAILS SUPPLY

During the latter part of 1916 and first part of 1917 a car shortage prevailed and not quite so much foreign coal came into Iowa, and Iowa coal again came into demand in the northern and eastern parts of the state. Following the car shortage of the winter of 1916-17 came a demand for coal at Eastern points caused by war conditions. This caused coal from the Central States to be diverted eastward, and this has been a decided advantage to Iowa coal producers. Conditions, therefore, were fairly good in the mines of Iowa during April, May and June of the year 1917.

This state would no doubt have continued had it not been for the agitation started in regard to the price for Iowa coal, together with articles appearing in the papers stating that the President would set the price for Iowa coal at the mines considerably lower than that which prevailed at the mines in May and June. All this talk of lower prices had a depressing effect on the industry, so much so that many dealers in the state refused to lay in their usual stocks anticipating a much lower price. The result was that many of the larger mines sold practically no coal at all to the commercial trade during the month of July and first part of the month of August, just when conditions of the trade should have been at their best. In the latter part of August the price of Iowa coal at the mines was fixed by the President, and immediately thereafter orders almost swamped the mining companies of the state. Since that time there has been a steady production and demand.

COAL BUSINESS UNSETTLED

However, during the year 1917, the coal business of Iowa has been more or less unsettled. First the miners felt that the agreement entered into in April, 1916, for two years did not cover the increased cost of living which had come about on account of war conditions, and they asked that a supplementary agreement be entered into that would give them a higher wage in the coal production. This was agreed to by the operators of the state, and the raise given the day laborers in the mines approximated 20 per cent., while 10c. per ton was added for the miner. Cost of living still continued to advance, and the miners asked for and were granted another increase following the Washington agreement in October, which added \$1.40 per day to the wages of the day laborers in the mines and an additional 10c. per ton to the miner in addition to increased pay for deadwork.

Prices asked for Iowa coal advanced considerably during the year 1917, and a feeling prevailed that the price asked for Iowa coal was too high. Many com-

plaints as to prices of coal came to the Governor of Iowa and to the mayors, especially of the larger cities in the state. The result of this was that the Governor called a hearing on the coal situation and asked for the operators' cost of production, dealers' cost of operation, information as to the daily production of coal and its distribution, and as to the amount of coal on hand in the various cities and towns of the state.

The hearing was adjourned twice and took up three days' time, and developed that there was no substantial shortage of cars to handle the production at the mines. It showed that the mines of the state were operating at their full capacity so far as conditions would permit. It showed that the miners and other laborers at the mines are coöperating in every way to increase the production at the mines. Reports were received at this hearing from 361 municipalities. Only three reported normal conditions as to a supply of fuel; 73 reported conditions as good; 159 reported conditions as bad, and 126 reported conditions as serious. These related to the fuel supplies in each place reporting the amount of coal on hand, the amount ordered and the demand. The places reporting the conditions as serious stated that the city or town reporting had on hand enough coal to last but three or four days with nothing in sight to relieve the situation. Others reported as bad showed enough coal on hand to last from one to two weeks. The hearing was conducted before Governor Harding and three mayors representing the League of Iowa Municipalities. This information will no doubt be of considerable value to the Fuel Administrator of Iowa and will enable him to care better for the fuel situation as existing at the present time.

Iowa is not able at present to produce all the coal consumed within the state. Approximately 7,500,000 tons of coal is produced annually by the mines of the state. Of this amount about 4,000,000 tons or more are used by the railroads operating within the state, and a small part of the production of the mines is shipped to other states. To supply the necessary needs, Government reports state that something over 4,000,000 tons of coal is shipped into Iowa from other coal-producing states, making the annual consumption of coal within this state for railroads, manufacturing industries and domestic use approximately 11,500,000 tons per year. It can thus be seen that if no Iowa coal was taken by the railroads of the state that the Iowa coal mines could supply every other need for coal in Iowa at the present time.

Under a change in the law the Iowa Mine Inspectors' office now gathers statistical information relating to the Iowa coal industry for a calendar year ending Dec. 31. Blanks for reports are sent to all companies on Jan. 1 of each year, and these blanks are usually returned and ready for tabulation about

Feb. 1 of each year, so I am therefore not able to give anything but approximate figures on the coal production for the year 1917, and can only make a comparison with the figures as compiled for 1916.

The statistics on file in this office for 1916 show a production of 7,217,969 tons of coal produced for that year. There was a slight falling off in the number of employees, the reports showing but an average of 15,195 employees in and around the mines for that year. Shipping mines operated on an average of 211 days during the year, while local mines operated on an average of but 143 days during the year. Total gross earnings of all employees in and around the mines for 1916 was \$10,259,008.95. There were 283,004 kegs of black powder used in the Iowa mines in 1916, and 149,168 pounds of dynamite used in mining coal in that year. Reports show 52 mining machines in use in Iowa in 1916. About the usual number of fatal and nonfatal accidents were reported for the year. No serious labor troubles occurred in the mines during the year, and none so far in the year 1917.

The production, employees, etc., for the year 1917 can only be forecast from reports of 1916 and from conditions existing at the mines during the year, but my best judgment would be that the final figures when received from the mines will show a decided increase in both the tonnage for the year and in the number of persons employed in the industry. I believe the production for 1917 will total better than 7,500,000 for the year and the employees this year should exceed 17,000. Work at the mines is exceptionally good for the time of year; in fact, the fall and winter months of 1917 have been better than for many years. I understand there are no large stocks of coal on hand at any place in the state, and it looks now as if the mines would have a steady production for some time to come. I also look for a good year in coal production in 1918.

Kansas

BY FRED GREEN

State Mine Inspector, Pittsburg, Kan.

KANSAS, like all other states of the Union, has made an unprecedented record, in the coal-mining industry of the state. Even before entering into the war against Germany the demand for fuel was so great that every resource of the state's mining wealth was brought into action. Our production possibilities are about 12,000,000 tons of coal per annum, at the present time, but owing to the lack of transportation facilities, including engine equipment and coal cars, our production from the mines in 1917 has been only about 7,500,000 tons, this being an increase over the year 1916, however, of three quarters of a million tons.

The steam-shovel system of mining has become an important factor in the mining industry of this state, and about

one-fourth of the coal production is obtained from that source. Three of the largest steam shovels in the world are used in the coal fields of southeastern Kansas, extracting the coal from its deposit where the overburden is not sufficient to permit of deep mines working successfully.

Cherokee County, the southern county of the Kansas coal field, has been working continually for 40 years in a sort of haphazard way, and the consequence is that a very large part of the coal has been left in the ground in the form of pillars. Numberless mines were worked out, leaving these large pillars of coal, as the profit to be obtained was not sufficient when the mines were being operated to take extraordinary risk this line of work requires. However, there have developed during the year more than 100 small shafts, sunk almost exclusively on pillars that were left behind when the coal industry was not so profitable as it is at this time.

PROPER TIMBERING MEANS SAFETY

One might look with awe on these little box-like tipples, wondering where the miner would find a way of escape if the main shaft should give way or cave in, but upon investigation the Mine Inspection Department of the State of Kansas finds these little places to be interlocked with each other, and that one "hole," or shaft, becomes an escape shaft for the other. On the whole, with proper timbering, the condition is about as safe as in the developing mines in the northern part of the field.

In the Crawford County district the depth to the coal seam runs from 100 to 250 ft. The undeveloped part of the field seems to be deeper. After reaching a depth of 100 ft., we find marsh gas generating from the coal seams in more or less quantities, and, until this winter, many shotfirers have lost their lives by explosions caused from accumulation of gas through insufficient ventilation, dusty roads, carelessly stored away powder and badly prepared shots. The officers of the Mine Inspection Department have been spending their energies to remedy these conditions, together with requiring the management of these "gassy" mines to heat and humidify the air current by exhaust steam pipes, sprinkling the gob walls and salting during the cold season. As a result not a shotfirer has lost his life this winter from that cause.

A great future is in store for the coal industry of this state, and if Uncle Sam succeeds in keeping empty cars at the mines I predict that next year will be far the greatest year in the production of coal that southwestern Kansas has ever known.

Rescue and first-aid work in this state are assuming larger proportions than ever before, and at the last session of the legislature of this state it was made possible to obtain adequate equipment for three rescue stations in the main coal fields of the state, in southeastern Kansas; and the state mine inspec-

tor of the State of Kansas was appointed ex-officio superintendent in charge of all the rescue stations. The law provided for a central station at Pittsburg, Kan.; a substation at Arma, Kan., and a substation at Scammon, Kan. Joseph F. Davies, formerly in charge of Government Rescue Car No. 4, stationed at Pittsburg, is superintendent in charge of the central rescue station, and William H. Jones and Robert Laws are in charge of the Arma and Scammon stations, respectively. All these men have established a good record for themselves in this field in rescue and first-aid work. While all the rescue stations are not fully equipped at this time, the State of Kansas is making rapid strides toward safety, first-aid and rescue work for the benefit of her thousands of coal miners.

CERTIFICATION OF MINE OFFICIALS

A law was also passed at the last legislature providing for the certification of shotfirers, hoisting engineers, gasmen and firebosses, assistant mine foremen and mine foremen, and providing a board, known as the "Mining Examining Board," for the examination of persons employed in such vocations. The law provides for the revocation of a certificate for intoxication, mental disability, neglect of duty or other sufficient cause when the case is properly proved before the examining board. It is thought that this will bring about a higher standard of efficiency among the miners and cause them to use a greater amount of care in the performance of their respective duties, and thus make for the safety of the men who work in the mines.

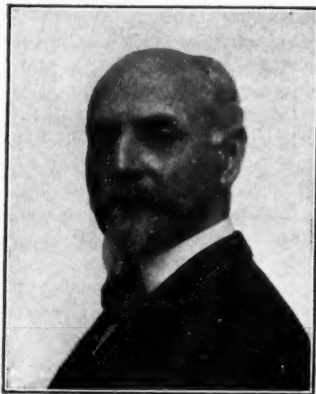
Kentucky

By C. J. NORWOOD
Chief of Department of Mines,
Lexington, Ky.

CONDITIONS involved in Federal control of coal production have caused some confusion as to making monthly reports to the State Department of Mines, therefore it has been more than usually difficult to make a satisfactory estimate of the yearly output so soon after the close of the year. The figures for output actually reported up to December, together with estimates for December and for such preceding months for which certain operators are still delinquent, indicate an output of slightly more than 26,000,000 tons. The tonnage actually reported for the eleven months' period is nearly 23,000,000 tons. The indicated production was as follows: By western district, 9,458,302 tons, of which 995,360 tons is estimated; southeastern district, 5,804,023 tons, of which 723,224 tons is estimated; by northeastern district, 10,862,685 tons, of which 1,574,276 tons is estimated, making a total of 26,125,010 tons. Had the car supply been adequate, the output would readily have exceeded 30,000,000 tons.

The production of the western field

was affected by car shortage, but not so much as that of the eastern. In the northeastern district of the eastern field the car shortage held production about 25 per cent. below what it would have been in this district. Two companies alone report a loss of more than 1,500,000 tons due to car shortage. This field also had to contend with a labor shortage amounting to about 25 per cent. in localities, but this was due rather to the continued car shortage than to inability to procure men. If steady work could be maintained the production of the southeastern district of the same field was apparently more than a million tons less than for the



C. J. NORWOOD

preceding year. This was due in part to a shutdown caused by a strike of two months' duration in the early fall, which was chiefly to enforce recognition of the union, but partly for the eight-hour day and further wage increases, and in considerable part due to the excessive car shortage.

A large increase in the number of new developments in the eastern field affected the average labor supply through a process of division, even though the number of miners and laborers in this field exceeded that of past years. The general opinion is that sufficient labor for each operation could have been procured had the car supply been sufficient.

FIXED PRICES RETARD PRODUCTION

The scale of prices as at first fixed by the Federal Fuel Administrator also somewhat retarded production in parts of the eastern field for a while because of confusion in classification of coal, and questions as to its application throughout the field have generally been adjusted. Use of local names instead of thickness and physical conditions for coals is still producing some confusion.

In consequence of 62 deaths in one explosion in Webster County, the mine-fatality record far exceeds any of the past; the State Department of Mines is badly handicapped through lack of sufficient number of inspectors and accidents are increasing. Not less than three more inspectors and better salaries to hold competent men are greatly needed.

Maryland

By JOHN L. CASEY

Mine Inspector for Allegany and Garrett Counties, Maryland

THE following table gives a concise summary of the mine-accident record at the different mines in Maryland during the year 1917:

Number of men underground	4,700
Number of men on surface	900
Foreman and clerical force	300
Total	5,900

The number of men killed during 1917 and the causes for the accidents are as follows:

Fall of roof coal	2
Fall of rappings	2
Fall of roof rock	4
Fall of middle rock	2
Fall of draw rock	1
Fall of bone coal	1
Caught while tunneling	1
Caught between cage and timber	1
Caught between motor and roof	1
Run over by loaded car	2
Jumped from runaway trip	1
Caught with rock shot	1
Electricity	1
Total	20

The following tabulation shows the companies at whose mines fatal accidents occurred during the year and the number:

Barton Mining Co.	1
Blaine Mining Co.	1
Piedmont & Georges Creek Co.	2
McNitt Big Vein Co.	1
New York Mining Co.	1
Davis Coal and Coke Co.	2
Hamill Coal and Coke Co.	1
Maryland & Georges Creek Co.	1
Consolidation Coal Co.	3
Frostburg Big Vein Co.	1
Georges Creek Co.	1
Mt. Savage & Georges Creek Co.	1
Garrett County Mining Co.	1
Ajax & Hocking Co.	1
Standard Coal Co.	1
Fitzpatrick Coal Co.	1
Total	20

This makes a total of 13 accidents for Allegany County and 7 for Garrett. In Allegany County are 39 companies operating 130 coal mines, while 18 companies in Garrett County operate 40 coal mines. During the year 18 new companies were organized and commenced shipping coal. The estimated tonnage for 1917 is 4,000,000 tons.

Michigan

By DUNCAN A. READ

State Mine Inspector, Lansing, Mich.

FOR the fiscal year ending Nov. 30, 1917, the number of tons of coal mined in the State of Michigan was 1,308,947. The average number of men employed each month was 2128.

Missouri

By J. GOLDMAN

Secretary Bureau of Mines and Mine Inspector, Jefferson, Mo.

MISSOURI broke the records in 1917 in coal production. The demand for fuel has been greater than ever before in the history of the state. Notwithstanding the great demand there has been little shortage for the general consumers and

practically none for the manufacturing concerns.

There were no strikes in this state, and the miners were constantly employed during the year at wages both satisfactory to them and to the employers. G. W. Hill, chief mine inspector, was highly commended by the Governor for the efficient manner in which inspections were made. Mr. Hill was re-appointed by the Governor in May and immediately surrounded himself with intelligent and practical miners. With this splendid force the miners were safeguarded in their work and at all times were well pleased with their surroundings.

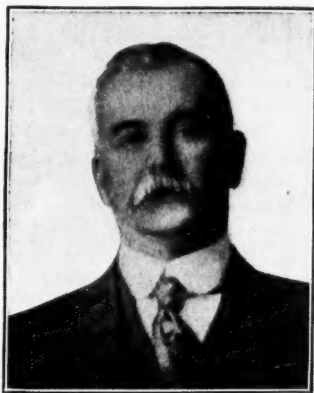
In view of the fact that over 5,000,000 tons of coal was mined in 1917, there were only 13 fatal accidents, about one accident to every 400,000 tons of coal mined. This is a splendid record, and, of course, is due to the excellent condition in which the mines were kept under the supervision of Mr. Hill and his corps of efficient assistants.

Montana

By JOHN SANDERSON
State Mine Inspector, Helena, Mont.

THE end of the fiscal year in the coal department has been changed from Oct. 31 to June 30. Under these circumstances I can only assume an approximate output for the state beginning with July 1, 1917, there being no figures available since that date.

The coal production for this state for the eight months beginning Nov. 1, 1916, and ending June 30, 1917, was 2,903,926 tons, therefore basing the output for the year on these figures, it is safe to assume that the total production will be about 4,400,000 tons. The production of coal for Montana will exceed by several thousand tons the output of 1916, which was the banner year in this state in point of produc-



JOHN SANDERSON

tion. There has been a marked increase in the demand for coal over former years, and although there have been a few complaints of a scarcity in some places, on investigation it has been found that these conditions have been local, and the situation has been relieved at once. The increased de-

mand for coal, along with the price as fixed by the United States Fuel Administrator, has been a factor in causing very many new mines to be opened up in the state, in some cases located from 5 to 30 miles away from a railroad.

While the production from these mines is not noticed along the line of the railroad, still they are the means of keeping the residents in their respective districts supplied with coal, where otherwise they would be compelled to get their fuel supply from dealers in towns on the railroad. Most of these mines are opening up in the eastern part of the state, in lignite coal, which lies near the surface, and the cost of opening up is not high. These mines generally employ from two up to as high as ten miners.

There has been some shortage of cars in the several coal fields of the state, but, taken altogether, the supply has been fair. The labor situation among the coal miners of the state during the year has been fair, there having been little labor trouble, and that of a local nature. The worst of the labor troubles took place at the mine of the Republic Coal Co., located at Klein, Musselshell County, where the miners were on strike for about seven weeks, which curtailed the output to the extent of about 100,000 tons. Several new mines have been put into operation during the year, some of which, when producing to their full capacity, will add quite an increase to the present output of the state.

The railroad mines—namely, the North Western Improvement Co., located at Red Lodge, the Republic Coal Co., located at Klein, and the Cottonwood Coal Co., located at Stockett and Lehigh—do not enter the commercial market whatever, their entire output being consumed by the various railroads.

New Mexico

By W. W. RISDON
State Mine Inspector, Albuquerque, N. M.

THE fiscal year in New Mexico is from Nov. 1 to Oct. 31 of the succeeding year. Hence this report covers the period from Nov. 1, 1916, to Oct. 31, 1917. The total tonnage for the fiscal year amounted to 4,113,544 tons: Anthracite, 46,613 tons; bituminous, 3,375,098 tons; semi-bituminous, 691,833 tons. Approximate value, \$8,227,988. About 46,899 tons was used in operating the mines; 1,049,102 tons was used in making coke; 3,917,543 tons was sold in the markets of Kansas, Oklahoma, Texas, New Mexico, Arizona, California and Mexico.

Number of men employed at the mines were: Miners, 3163; daymen in the mines, 1244; boys in the mines, 67; daymen on top, 983; boys on top, 48. Total number of men and boys employed at the mines, 5505. Number of men employed in making coke, 397. Number of coke ovens, 1157. Tons of

coke manufactured, 561,112. Approximate value of coke made, \$2,525,000.

There were twelve fatal accidents in the mines during the fiscal year. This is charging the industry with one man found dead in the mine—who in all probability died of heart failure—and two men who died in the hospital some



W. W. RISDON

30 hours after being injured in the mine by a fall of top coal.

While the year 1917 shows an increase of 220,359 tons of coal over the year 1916, the production for 1917 was curtailed by strikes and shortage of miners. A strike at the mines of the Gallup-American Coal Co. caused a loss in the production from the Gallup district of at least 100,000 tons of coal. The strike was called on the first day of July. The demand was for recognition of the union. While the strike was called only against the mines operated by the Gallup-American Coal Co., the other mines in the district were affected by the disturbance of working conditions at their mines.

From records kept at the mines of the large companies of the men at work each day, the miners employed in the mines in this state are working a little over half time. In making this statement I am figuring full time as being 8 hours at the working face six days per week. From the best information I am able to get, 25 to 33 per cent. of the miners are off every day in the year, and in no case do they work 8 hours at the face. The daily average falls below 6 hours at the working face. The net result is about 56 per cent. efficiency for the coal miner in New Mexico.

Colfax County is the principal producer of the state. Two companies—the St. Louis, Rocky Mountain & Pacific Co. and the Phelps-Dodge Corporation—produced 3,203,181 tons of coal and made 561,112 tons of coke. Each of these companies is opening new mines which are expected to be big producers. Over \$250,000 have been spent by these companies this year for improvements and additions to equipment.

During the year the Diamond Coal Co. opened a new mine in McKinley County. This company has spent over \$250,000 in building a power plant, new

buildings and the electrification of the old mine. The Gallup-American is figuring on extensive developments during the coming year and in all probability McKinley County can be counted on for a big increase in production.

New Mexico has a large area of workable coal seams, and if the demand for coal continues to be as great as it was for the year 1917 there can be no doubt that some large producing mines will be opened.

North Dakota

By J. W. BLISS

State Engineer, Bismarck, N. D.

FOR the year just closed, the production of lignite coal in North Dakota was about 20 per cent. greater than for the previous year. Transportation difficulties, as well as increased demands for anthracite and bituminous coals, have produced a serious shortage; and in many localities in the state where these coals were formerly sold they cannot be secured at the present time, or if available at all, they can be had only in such small amounts that, with the irregular supply, the average citizen does not feel secure. As a result, in thousands of homes in the state lignite is being used for the first time, and with a degree of success which indicates that even after normal conditions are restored a tremendously increased demand for the native coal will exist. Practically all the power plants in the state are now using lignite, finding it economical to do so.

About 689,000 tons of lignite was produced during the year, valued at \$2 a ton at the mine. An average of 1115 men was employed during the winter months, of whom 757 are classified as miners and 358 were employed in other capacities. An average of 632 men was employed during the summer months,



J. W. BLISS

of whom 388 are classified as miners and 244 were employed in other capacities.

There have been but three fatalities, an average of 0.45 per hundred thousand tons of production, or 0.35 per cent. of the average number of men employed. The few fatalities and ac-

cidents are due to the fact that the lignite mines of this state produce no explosive gases, and with the exception of a few localities the roof materials are substantial.

Labor has been scarce, and there have been two small strikes; but these being of short duration, they had no appreciable effect on the production.

The State School of Mines, which has been experimenting for a number of years with the problems of briquetting lignite, has been making very satisfactory progress. These experiments indicate that commercial briquetting, under circumstances permitting of the utilization of all the byproducts, will result in a rapid development of the immense beds of lignite which underlie the western half of the state.

South Dakota

By O. E. ELLERMAN

State Mine Inspector, Lead, S. D.

THE coal-mining industry of South Dakota remains inactive, and as a coal producer the state has gained but little prominence. The total output for the year 1917 was 10,848 tons, and this seems to be an approximate annual average for the past number of years. Nearly the entire production is used as a local fuel by the farmers and ranchmen.

The lignite field comprises areas in Harding, Perkins, Dewey and Meade Counties, with negligible quantities in the adjacent territory. The districts mentioned lie north and east of the Black Hills, the metal mining section of the state, where the mines and quarries produce annually mineral wealth valued at \$8,000,000. The product from the coal mines for the past year had a value, at the mine, of \$25,268. The industry gave employment to 110 men for an average of 150 days.

The mining industry in the Black Hills region gives employment to upward of 3000 persons for over 300 days in each year, and South Dakota ranks fifth among the states of the Union in the production of gold. In addition to this, gradual increases are made annually in producing tungsten, lead, silver, mica, tin, copper, gypsum and numerous other minerals of less value. The production of coal remains the same with no new developments or advancement in output. There are, however, reasons why a state that has deposits estimated at over a billion tons of minable coal cannot show a larger annual tonnage.

The backwardness in making use of local fuel is due directly to the following: First, the distance from railroad and lack of transportation facilities. Second, the grade of the coal, which readily disintegrates upon exposure to the air and for that reason cannot be transported any great distance. This no doubt has a tendency to retard exploitation.

To commercialize this natural resource it will be necessary to have near railroad connections and to install

plants for the briquetting of the lignite. A plant at the Scranton mine, just over the border in North Dakota, was placed in commission this past year and has proved that the coal can be briquetted without a binder. It is a success, and the entire output of 75 tons daily has found a ready market. The demand



O. E. ELLERMAN

has been so great that additions are being made which will give a capacity of several hundred tons.

It is claimed for the briquet that it affords a more economical fuel, both with respect to cost and heat value than the coals shipped into the state. The grade of the coal at the North Dakota mine is the same as that of our state, and tests made on some of the local material assures as good a briquet. Already some of the operators are making arrangements for the installation of treatment plants, and it is probable that within a few years' time the annual production will be noticeably increased. Even with the satisfactory solution by briquetting there remains one drawback, for until we have an outlet to market South Dakota will not make rapid strides in the increased production of coal.

The State Legislature of 1917 passed a resolution authorizing the appointment, by the Governor, of a commission to investigate the coal deposits on state-owned coal lands. This commission has been named, and during the year will make a report on its findings. It is hoped that the investigations will reveal deposits that warrant development on a large scale of a fuel that is sufficient to supply the needs of the state for a number of years to come. There were no accidents recorded to employees of the coal companies.

Ohio

By L. D. DEVORE

Chief Deputy and Safety Commissioner of Mines, Columbus, Ohio

FROM reports received from the coal-producing districts of Ohio, the tonnage will show a decided increase over the year 1916, the amount being estimated at 38,000,000 tons, or an increase of 10 per cent.

Not for years was there such a scarcity of railroad cars reported, upon

which the coal industry depends so much to move the tonnage. All mining districts reported the tonnage to have been from 25 to 30 per cent. less, due to this cause. While the question of the supply and demand of railroad cars is always a perplexing problem of the coal industry during certain portions of the year, the year 1917 experienced unusual abnormal industrial conditions not met with in former years, and were in the main responsible for this situation. The "Priority Act" promulgated by the United States Coal Administrator, which diverted all coal to the Northwest until the close of the Lake season, which was unusually late in closing this year, also had its effect upon the situation. Reports seem to indicate that the Eastern Ohio District suffered more from the lack of cars than the Hocking Valley District.

LAKE SHIPMENTS WERE HIGH

Lake shipments of coal for the year 1917, from all reports, seem to have exceeded all other years in point of tonnage, and has furnished a ready market regardless of quality; the demand was also greater than transportation facilities afforded.

During the forepart of the year there seems to have been a scarcity of labor in the coal mines of the state; these conditions changed, however, when the price of labor increased from \$3.60 to \$5 per day. Labor was also robbed of much of the fruits of the year's prosperity in the increased wages granted by the operators due to the lack of an adequate supply of railroad cars. The scarcity of labor in some instances has affected the efficient operation of some of the mines, but did not materially affect the production.

No serious labor troubles were experienced during the year, and the Ohio miners as an organization have shown a patriotic spirit in responding to all demands made upon them by the unusual conditions met with in the year 1917.

The time reported worked in the various mining districts varies from 60 to 75 per cent.; the greatest loss of time occurred in the months of November and December, when the car situation became so acute, and this condition still obtains at the close of the year.

The output of Belmont County has been estimated at 12,000,000 tons, an increase of 2,000,000 tons; this may not be realized when accurate statistics are received as the car shortage was keenly felt in this district the latter months of the year. Athens County has an estimated tonnage of 4,700,000 tons, an increase of 1,000,000 tons; Jefferson County 6,000,000 tons, an increase of 600,000 tons; Perry County 2,000,000 tons, an increase of 800,000 tons.

Taking into consideration the unusual conditions entering into the coal situation for the year 1917, the total number of fatalities reported is not abnormal as compared with the year 1916, 113 having been reported, an increase of 5, or 4.6 per cent., as compared with

the number reported for the previous year, when 108 were reported.

Belmont County reported the greatest number of fatalities, 32 in all, a decrease of 1 as compared with the year 1916; Jefferson County 18, a gain of 4; Guernsey County 15, a gain of 2; Athens County 12, a gain of 2. Jackson and Meigs Counties show losses of 3 accidents each, and Harrison and Carroll Counties a loss of 2 each. Lawrence County, which in the year 1916 reported 4 fatalities, reported none for this year.

Falls of roof caused the death of 65 persons, an increase of 2 over the year 1916; falls of coal show a loss of 3, two being reported; mine cars 21, an increase of 2; motors 3, a loss of 3; electricity 4, a decrease of 1; explosions of powder 4, an increase of 1; due to miscellaneous causes, 10 deaths were reported.

The outstanding feature of the coal industry for the year 1917 was the number of new operations reported to the department. The demand for coal and the attractive prices offered for it was productive of this condition. These operations have been reported from all twelve mining districts of the state.

Portions of mines long since abandoned have been reopened to mine coal, which under previous conditions had been considered unprofitable. Many small mines are being opened along the outcrop of the coal seams of old abandoned mines. Many of these operations will of necessity be of short duration, and will only operate while conditions render them a profitable investment, while others will be of a permanent nature, and will increase their coal territory and add very materially to the mineral resources of the state.

Rapid progress is being made in the tonnage reported from coal territories where the coal seams are adapted to the method of mining known as "stripping." These mines have been opened up in the counties of Harrison, Jefferson, Perry and Tuscarawas, and in the year 1916 reported a tonnage of 533,152 tons mined. The year 1917 will undoubtedly show a much larger production from this method of mining coal.

Several mine fires were reported to the department during the year, but were controlled without the loss of life and any great property damage. The most serious mine fire occurred at mine 268, operated by the Ohio Collieries Co., Toledo, Ohio, located in Perry County; the fire started from an unknown origin, and the mine was idle 60 days awaiting the sinking of an interior shaft, after which it resumed operation with an output of from 450 to 600 tons of coal per day. This mine fire was unusually difficult to control, owing to the fact that it was connected with other mines, some of which had been abandoned for years. The fire section remains sealed at the close of the year.

What gave promise of a very serious mine fire occurred at the Superior No. 12 mine operated by the Superior Collieries Co., located in Jackson County,

Ohio. On Dec. 11 the tippie burned down at 4:30 o'clock in the afternoon, the flames communicating to the coal near the bottom of the shaft, caused by the timbers of the shaft becoming fired. Prompt work on the part of the department, assisted by employees of the coal company, arrested the spread of the fire, and it was extinguished without the necessity of sealing the shaft.

On Mar. 20, 1917, the State Legislature in session amended Secs. 929 and 950 of the R. S., regulating the lowering and hoisting of persons in mines by vertical shaft 50 ft. or more, and requiring additional emergency openings for egress from dangerous mines.

On Mar. 21, 1917, Secs. 973-976 and 914 of the G. C. were amended relative to the location of oil and gas wells, abandonment, inspection and the interpretation of "coal-bearing and coal-producing townships."

Sixteen prosecutions were reported during the year for violations of the mining laws. For going beyond a danger signal, for entering a mine in an intoxicated condition, 4; operating a mining machine unshielded, 2; for violation of the carbide law, 6; violation of the breakthrough law, 2; riding on moving trips, 1; for fireboss making a false report, 1. These fines amounted to \$155.

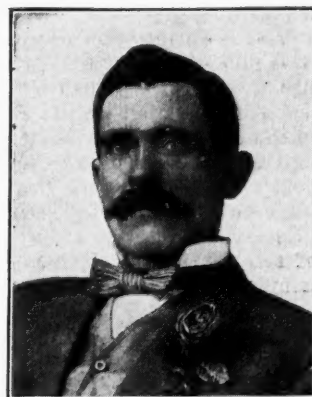
Considering all circumstances entering into the different phases of coal mining during the year 1917, the outcome of the industry has not altogether been an unsatisfactory one in point of production. With the advent of governmental control of all railroad equipment, marked improvements can be anticipated the coming year of 1918.

Oklahoma

BY EDWARD BOYLE

Chief Mine Inspector, McAlester, Okla.

DURING the fiscal year ended July 1, 1917, there was produced from the mines of Oklahoma 3,861,697 tons of coal. This is an increase in production from the previous



EDWARD BOYLE

year of 808,154 tons. Of the 1917 output 2,508,123 tons was obtained by pick mining, while 1,353,574 tons was produced by machine mines. This is

an increase of machine-mined coal of 582,820 tons over the production for 1915, which is significant of the progress made in this state in recent years in this method of mining, when it is remembered that in 1910 the production of machine-mined coal was practically nothing.

Oregon

BY HENRY M. PARKS
State Mine Inspector, Portland, Ore.

PRODUCTION of Oregon coal mines for 1917 has not changed materially over 1916. The total of all grades marketed in 1916 was 43,404 tons, which sold at an average price of about \$3 at the mines, and it is not expected that the output during the past year will exceed that figure to any considerable degree. The productive mines of the state are limited almost entirely to Coos County, in the vicinity of Coos Bay, where five properties were active during 1917.

The Beaver Hill mine, owned by the Southern Pacific Railway Co., is the largest and best equipped mine in the district. It is located about 12 miles south of Marshfield and is managed by L. A. Wherat. The equipment consists of an up-to-date tippie and a screening and washing plant, which turns out about 150 tons daily of lump, nut and pea grades. At present this mine has about 50 men on its payroll.

The Henryville, or C. A. Smith, mine, owned by the Smith-Powers Logging Co. and leased by R. M. Jennings and associates of Portland, is located 6 miles southeast of Marshfield. The mine has good equipment and produces, normally, about 100 tons daily, 25 men being employed.

The Libby mine, located 3 miles southwest of Marshfield, is operated by the Coos Bay Fuel Co., with George Doll as manager. This mine has produced for 65 years and now employs about 20 men.

The Kay mine, located at Riverton, and formerly operated by the Riverton Fuel Co., has been taken over by J. R. McGee. It has been a steady producer; some 30 men are employed. The only casualty noted during the past year was at this mine and that in February, last, when a miner was killed by falling rock. Another mine is the Pansy Hill, owned by the Coos Bay Water Co. and leased by J. C. Swanson.

The coal mined in the Coos Bay district has been classed by the United States Geological Survey as a good grade of sub-bituminous. The average of 18 samples taken is as follows:

Air-Dried Sample:	Per Cent.
Moisture	9.6
Volatile matter	36.3
Ash	13.2
Fixed carbon	40.9
	100.00
Sulphur	2.05
Calories	5,399
British thermal units	9,720

The North Pacific States, and especially Oregon, are now experiencing general critical conditions in the fuel

supply. California oil producers, who have formerly supplied this section with crude oil for heating and steaming purposes, are refusing to make further shipments to meet new demands and decline to renew contracts after present ones expire. Considering the fact that crude oil has been the great competitor of coal, the situation is such as to make conditions more favorable to coal mining. Likewise the scarcity of wood as fuel has favored the same condition. It seems almost incredible that with cities located in the heart of such magnificent forests as Oregon possesses that wood should be nearly prohibitive in price and scarce in quantity. The shortage of labor has made it impossible to get wood to market.

The Federal Bureau of Mines, in co-operation with the Oregon Bureau of Mines and Geology, is conducting experiments on fuel briquetting in an effort to utilize the fines produced by the screening plants in this district which are now being wasted.

The area of Coos County, which is underlain with coal, is about 300 square miles, with an average thickness of coal beds of 4 ft. It is estimated that the district contains over a billion tons of coal which, at the present rate of production, makes the supply almost inexhaustible. A closer study of market conditions and transportation, together with better methods of mining and management, might well be adopted to make this region a greater source of fuel supply. Conditions are generally improving and innovations being made to operate more cheaply and with greater capacity.

Pennsylvania

BY FRANK HALL
Chief Deputy, Department of Mines,
Harrisburg, Penn.

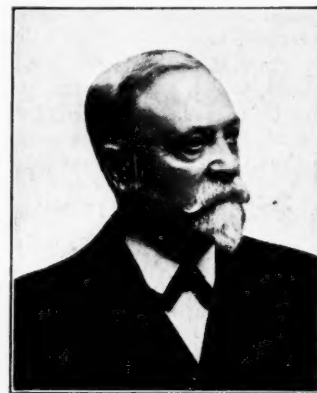
THE output of the coal mines of Pennsylvania in 1917 is estimated at 267,735,001 net tons, of which 97,525,770 tons were anthracite and 170,209,231 tons bituminous. The production of coke reached a total of about 26,000,000.

The year is without parallel in the entire history of the coal-mining industry, not only on account of the unprecedented output of coal and coke, but also on account of the conditions more or less chaotic that prevailed, due to war demands and restrictions. These conditions were so abnormal and impelling in their character as to make it impossible for the operators to cope with them with entire success. New conditions are always difficult to deal with, and when they come as a result of an imperative demand from which there can be no exemption, they place a strain upon even the greatest resourcefulness and highest efficiency.

In spite, however, of the confusion that existed in all the mining centers and the drawbacks of car shortage and labor troubles, the coal and coke production exceeded by many millions of tons the output of any previous year.

In producing the great tonnage of

the year the mines employed 335,323 men, and the number of fatalities among the workers was 1062. This may seem like a heavy toll of life, but comparatively, and with the unprecedented conditions considered, it is a good record. In 1915, with a production of 246,797,774 net tons, the fatalities numbered 1030, and in 1916, with a production of 256,804,012 net tons, they numbered 1001. In 1917, notwithstanding



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Penn.

ing the tremendous activity that characterized mining operations and the almost universal disregard of the ordinary rules of safety by the mine workers, the percentage of fatalities shows only a slight increase over those of 1915 and 1916.

It must obviously be taken as a tribute to the superb equipment and efficiency of the hundreds of great mines in Pennsylvania and the skill of the workers that no catastrophe of magnitude occurred. When it is recognized that rapid work, long hours and a continual drive tend greatly to a lack of discipline and to increased danger, the

ANTHRACITE

District	Production, Gross Tons	Em- ployees	Fatal Acci- dents	Coal Consumed at Mines
1	3,223,334	6,175	16	281,059
2	2,660,031	5,994	24	174,845
3	3,344,233	5,418	16	354,141
4	2,376,752	5,042	27	194,872
5	3,337,837	6,649	20	294,985
6	3,408,008	6,157	25	186,927
7	2,909,088	5,861	23	169,160
8	4,390,412	9,459	28	269,465
9	3,248,500	5,460	18	364,553
10	3,111,526	6,111	21	340,425
11	3,237,442	5,725	33	298,333
12	3,955,519	6,980	22	163,992
13	4,135,620	6,480	32	288,928
14	4,211,233	7,256	19	370,885
15	4,627,204	6,509	25	516,276
16	3,096,853	5,543	10	315,751
17	4,577,678	6,448	22	367,752
18	3,704,056	5,611	25	419,615
19	2,671,697	4,900	27	430,173
20	3,491,065	7,937	29	476,712
21	4,349,124	7,020	27	78,618
22	4,486,687	6,956	31	629,482
23	2,729,985	5,561	18	399,338
24	3,062,696	5,163	18	309,459
25	2,730,000	5,200	16	570,000
Totals	87,076,580	155,615	572	8,265,746

small number of fatalities gives evidence of unusual preparedness and of most careful operation of the mines.

The year's activities were hampered somewhat by labor shortage, strikes, disturbances over wage scales and by an inadequate car supply.

Strikes occasioned very little trouble, but in most districts the shortage of labor and cars was keenly felt, although in some instances the handicap of labor shortage was overcome by increasing the number of working hours.

A few districts for some unknown reason seemed to be entirely immune from all untoward conditions and passed through the year without loss of trade or inconvenience of operation. The output, had all conditions been favorable, would probably have reached 300,000,000 tons.

The coke output, great as it was, would have been several million tons greater had labor been more plentiful. During the summer months it was almost impossible to obtain coke drawers, and the conditions became so acute and

being taught higher standards of life and the desirability of finer moral and mental equipment for the struggles of the future. It is reported from some sections that the lessons inculcated in the young minds regarding the evils attending the use of alcoholic beverages are being carried home and so impressively presented to the other members of the household that many fathers and brothers are being weaned away from the greatest enemy to health and domestic happiness.

There were very few innovations of note in connection with the mining operations or in the social conditions of the mining communities. Some of the anthracite operators have installed improved breaker machinery by which the number of persons employed in the

tion as a coal community during the civil war, 1860 to 1865. In 1860 the output of anthracite was about 8,000,000 tons, less than one-tenth of the present production. The output of bituminous coal which was just beginning to make itself felt as a factor in industrial circles was 10,000,000 tons, or about one-seventeenth of the great production of the present time.

With the extraordinary demand for fuel and the stimulus of extremely high wages, the outlook in Pennsylvania is favorable for a record-breaking production in 1918 provided the car supply and car distribution can be maintained with necessary efficiency, and further provided that the men can be kept steadily at work instead of indulging in the too-frequent vacation periods for the purpose of enjoying their munificent earnings.

BITUMINOUS

District	Production, Net Tons	Employees	Fatal Accidents	Coal Consumed at Mines	Coke Production
1	5,876,816	6,668	26	1,162,139	586,336
2	7,223,651	5,895	17	151,000	2,218,330
3	3,900,000	5,470	9	144,475	
4	4,500,000	5,120	9	139,000	138,700
5	7,001,312	7,846	12	5,112,852	4,277,186
6	5,117,731	5,813	14	96,089	1,160,657
7	4,531,390	6,126	17	118,753	
8	5,287,968	6,050	8	74,945	
9	7,130,000	6,505	16	130,000	3,100,000
10	3,813,818	4,778	10	84,810	104,750
11	7,105,236	7,650	19	159,632	2,878,843
12	6,439,264	6,301	13	236,213	519,663
13	4,325,000	4,000	15	90,000	
14	3,871,858	4,209	11	278,756	8
15	5,411,836	6,363	15	84,013	23,800
16	9,600,000	8,000	34	200,000	5,200,000
17	5,005,239	5,028	12	96,896	
18	4,800,000	7,100	13	100,000	175,000
19	6,252,000	5,200	14	201,090	29,500
20	4,706,800	5,890	10	112,532	
21	7,137,132	7,191	24	109,112	194,750
22	4,250,000	4,190	9	70,000	125,000
23	7,540,000	7,390	24	165,000	3,000,000
24	5,546,889	5,737	16	153,370	
25	5,839,203	5,518	20	92,493	
26	5,019,800	5,053	34	68,100	
27	5,951,868	5,313	19	167,276	1,314,425
28	5,484,420	6,014	10	243,333	57,600
29	4,840,000	5,000	18	100,000	
30	6,700,000	8,290	22	154,500	219,650
Totals	170,209,231	179,708	490	10,096,289	25,324,198

the prospect seemed so hopeless that some of the companies changed their ovens from hand- to machine-drawn types. The hindrances to the trade, however, serious as they were at times, had the effect merely of reducing somewhat the unusually large profits of the operators.

One of the improvements in mining conditions is the gradual adoption of electricity as a means of power and for illuminating purposes. Several of the larger companies are replacing steam power with electric power, hoists are being placed on shafts and slopes with automatic brakes to check over-speed or over-hoists, and electric lights are being placed in the mines along the gangways and at all other places where lights are required. Gasoline motors are being replaced by electric haulage.

The beneficent effect of the recent child-labor legislation is being felt very appreciably in the mining communities, and the good results are not confined alone to the children, who are now in school acquiring an education instead of wearing their young lives out at the hard task of breaker work or in the mills and factories, but into the homes and to the parents have come new ideals and loftier aspirations, brought to them by the children who are daily

preparation of coal has been greatly reduced. In the different mining communities many modern houses have been erected for the employees. Equipped with modern conveniences and the additional attraction of yards and gardens they are in every way most satisfactory dwelling places. The educational advantages and social conditions of the communal life of the mine workers and their families are gradually but assuredly improving.

The year has been one of great prosperity to both the operator and the miner. Prices for coal were exceedingly high until near the close of the year when the prices were fixed by the Federal Government, lessening to a great degree the vast profits that were being garnered by the operators. Even under the Government prices, however, the well-conducted mine is profitable and no fear need be entertained as to the results of the coming year. The wages of the miners have risen to almost unreasonable heights and reports of unheard-of earnings are received from all sections of the regions.

The war has called attention to the really modern science of coal mining, particularly in the United States. Pennsylvania, the great leader in coal production, had scarcely an organiza-

Texas
BY B. S. GENTRY
State Inspector of Mines, Rockdale, Tex.
IN TEXAS, during the year 1917, the total production of coal is estimated to have been about 2,650,000 tons, of which 1,400,000 tons was bituminous and 1,250,000 tons lignite. There were in operation during the year 16 bituminous and 30 lignite mines. No new bituminous mines were opened, but the close of the year sees a number of new lignite mines under construction.

Some of the mines have suffered from car shortage and there has been some labor shortage. The bituminous mines, which are located in the northern part of the state, employ principally American and Italian miners, while the workers in the lignite mines are principally Mexican miners. All the mines have been practically free from strikes during the year.

The high price of fuel oil is creating a large demand for lignite, and it looks as if the year 1918 will find most of the large steam plants using lignite. Fuel oil has always been a strong competitor of lignite, and with this competition largely removed there should be an enormous development throughout the lignite fields, which extend practically across the state, beginning in the northeast corner and extending in a southwesterly direction to the Rio Grande, or Mexican border. The seams along this formation are not workable at all points, in many places the seams are too thin, etc. At many points there are known to be three or more seams overlying one another and all of workable thickness. The average cover between seams is between 40 and 50 ft., while the seam nearest the surface has from 10 to 200 ft. of overburden. The largest deposits are probably located in Milam and Bastrop Counties. Other counties where lignite is mined are Titus, Hopkins, Wood, Henderson, Leon, Houston and Robertson.

Each year sees many improvements in the lignite fields, and the primitive methods of a few years ago are giving way to modern systems. Many well

equipped mines have been opened recently. Most of the lignite produced in Texas is pick-mined, and of the bituminous production about one-half is shot off the solid. There are no mining machines in use in the lignite mines, though a few machines are in use in some of the bituminous mines. The lignite mines should offer a good field for future use of mining machines, it being necessary only to find the type of machine adapted to these particular seams.

There were few fatal or serious accidents in Texas mines during the year, little hazard or risk being connected with the mining industry of the state, as there are no gaseous seams of coal and the roof conditions are usually good. The indications are that the output of both bituminous and lignite mines during 1918 will be the largest in the history of the industry in Texas.

Utah

BY ROBERT HOWARD

State Mine Inspector, Salt Lake City, Utah

THE coal industry of the State of Utah, during the year 1917, has been peculiar in many ways. The year started out with the various coal companies having many more orders for coal than they could possibly fill. The demand was greater than at any other time in the history of the state.



ROBERT HOWARD

The mines were in shape to produce a large tonnage, but were handicapped by a shortage of railroad cars.

The slow work in our coal mines had caused many of the miners to leave the mines and go where work was more steady. This caused a shortage of men, which has continued all through the year until during the month of October, when men began to come back, and at the present time most of our coal mines have all the men they can use and some are refusing to hire more men.

The shortage of men was a good thing in that it gave those men who were working a chance to earn more wages, as the miners usually got all the cars they could on workdays, and on idle days they could go in the mine and put their working places in good

shape, and probably load some empty cars left from the previous day. Daymen, both in the mine and on the outside, were given as much work on idle days as the companies could find for them, thus helping to hold this class of labor at the mines.

During several months of the year the railroad-car shortage was so bad that the mines worked but little more than half time.

UTAH COAL HAS WIDE MARKET

Besides furnishing the coal for our own state, the market for Utah coal is found in the States of Idaho, Nevada, Washington, Montana and California—these states looking to the mines of Utah for a large part of their coal supply. In some districts, during the early part of the year, the shortage of coal was felt so keenly that fences, shade trees, etc., were cut down and used for fuel. During the entire year there has been no let-up in the demand for Utah coal. Delegates from the State Council of Defense of Idaho and from other states have visited the various coal companies to check up the coal production and see if it was not possible to get more coal shipped to their respective communities, all to be met with the same cry, that the railroads could not furnish the mines with cars, and the mines were only working about half time.

During the month of November, the Utah Coal Road (which has been under lease to, and had been operated by, the D. & R. G. Ry.) commenced to handle its own railroad and take care of the United States Fuel Company's mines at Hiawatha, Blackhawk, Mohrland and Panther, and, as this railroad is using its own cars and engines, it has taken this amount of work from the D. & R. G. Ry., which is now better able to take care of the balance of the coal mines which are located on its lines. At the present time the mines are working better and a much larger tonnage of coal is being produced than at any other time during the year.

There has been very little labor trouble at the mines during the year. At three mines demands were made for more wages; these demands were settled by giving the men an increase. Wages at the mines have been increased four times during the year, and at the present time wages are from 60 to 70 per cent. higher than they were on Jan. 1, 1916. It is not uncommon to find miners earning \$12 to \$15 per day, and making between \$300 and \$400 per month, in the various mines.

The coal mines of this state are chiefly in Carbon, Emery and Grand Counties, and are located on the Denver & Rio Grande Ry. On June 26 the dam of the Mammoth Reservoir, located several miles above Scofield, and built for the purpose of storing water to irrigate about 30,000 acres of land in Carbon County, Utah, broke, and the water rushed down Pleasant Valley, washing out 15 miles of the Scofield ranch of the D. & R. G. Ry.

At Colton the water ran into Price River and washed out parts of the main line of the D. & R. G. Ry. between Colton and Helper, Utah, causing a loss of probably more than one million dollars to the D. & R. G. Ry. and cutting off the state's supply of coal.

This caused a delay of two months to the mines located at Scofield, Clear Creek, Utah Mine and Winter Quarters, and the balance of the mines located in the Helper District were delayed about a month as a result of this flood. The loss in the production of coal due to the D. & R. G. tracks being washed out by this flood of water is estimated at 400,000 tons of coal, but notwithstanding this, and the fact that the mines worked little more than half time during a large part of the year, we find that the tonnage has increased and our mines have produced 4,051,210 tons of coal, this being 429,275 tons, or 12 per cent., more than was produced during the year 1916. From the coal produced 668,058 tons was made into coke at the Sunnyside coke ovens.

An average of 3434 men was employed at the mines, and 325 men were employed at the coke ovens, this being approximately the same number as was employed during the year 1916.

There were 20 fatal accidents during the year, this being one fatal accident for each 203,060 tons of coal produced. During the year 159,700 lb. of black powder and 583,166 lb. of giant and permissible powder were used, or 1 lb. of powder for each 5.47 tons of coal mined. The average time worked at 14 of the largest mines was 207 days for the year.

MANY "SNOW BIRDS" IN STATE

There are a large number of country banks and wagon mines in the state, some of these having an output of several thousand tons each. This coal is hauled to the railroad and loaded into railroad cars. The tonnage from these mines is estimated at 30,000 tons, but will exceed this figure.

In addition to the number of men actually employed in producing coal, there has been a large number of men at work making improvements, among these are 60 new houses and 84 coke ovens, which have been built at Sunnyside, 20 new brick houses built at Standardville and 25 houses built at Rains. The present mines have been developed for a much larger production, and the operators are looking forward to the year 1918 being a banner year.

There are several new mines being opened up, development and construction work having been going on for several months past. These are the Liberty Fuel Co., the Wattis Coal Co. and the Peerless Coal Co. If the railroads furnish cars, as it is hoped they will, the 1918 production of coal in the State of Utah should be 50 per cent. greater than that of this year.

State-wide prohibition went into effect on Aug. 1, and so far as the mines are concerned it is working out in good

shape. The miners are at work the day after payday, and the output of coal is kept up to normal instead of being reduced for several days after payday, as it was before prohibition went into effect.

Washington

BY JAMES BAGLEY

State Mine Inspector, Seattle, Wash.

PRODUCTION of coal in 1917 promises to be the largest in the history of the state, with the possible exception of 1910, when the production was 3,979,569 short tons. Owing to floods during the present month, the coal production will fall considerably during the current month. According to reports received and an estimate for December, the output will be about 3,965,000 short tons, an increase of over 945,000 tons, or about 32 per cent., as compared with 1916. Approximately 5400 men are employed at the mines at the present time as compared with 4746 in 1916.

The outlook for the industry in 1918 is bright. The demand for coal in the state is due principally to the shortage and high price of fuel oil, and consumers of oil are changing over to coal. There have been no new mines opened during the present year, but some of the old mines have been reopened. No labor troubles occurred during the present year. All the mines in the state are now organized.

Twenty-eight fatal accidents have occurred to Dec. 24 as compared with 21 in 1916. Of this number six bodies have not been recovered, and rescue operations are now proceeding to recover the bodies of six men caught by a cave-in of the pillar workings at the Wilkeson Mine, Wilkeson. This accident occurred on Dec. 17.

West Virginia

BY EARL A. HENRY

Chief, Department of Mines, Charleston, W. Va.

DURING the past year the coal industry of West Virginia has been in a very unsettled condition. The lack of railroad facilities and shortage in the supply of railroad cars have retarded the progress to such an extent that the production has remained practically at a standstill. A large number of new companies have been organized and quite a few consolidations have been made. The statistics contained herein are for the fiscal year 1917, which began July 1, 1916, and ended with June 30, 1917. During this period 665 companies operated within this state and reported 1186 operating mines, which produced 79,806,652 gross tons of coal as against 79,612,298 gross tons last year—this being an increase of 194,354 gross tons. Two counties, Webster and Wetzel, were added to the coal-producing counties, thus making 35 counties in the state in which coal is mined. Eleven counties

within the state producing more than 1,000,000 tons each are as follows:

McDowell	18,671,942
Fayette	9,555,518
Logan	8,859,122
Raleigh	6,304,282
Kanawha	5,577,677
Marion	5,125,390
Harrison	4,675,411
Mercer	3,225,429
Mingo	3,207,162
Barbour	1,306,983
Taylor	1,270,182
Tucker	1,214,964
Marshall	1,119,827
Preston	1,106,378

From this it can be seen that McDowell still heads the list of producing counties in this state with a production of 18,671,942 gross tons, which is a decrease under the production of last year of 327,137 gross tons.

During the year 90 companies within the state produced more than 200,000 gross tons each and seven companies of this number produced more than a



EARL A. HENRY

million gross tons. The United States Coal and Coke Co., of McDowell County, has taken first place among the coal-producing companies, it having mined 4,552,132 gross tons. The seven companies mining more than a million gross tons each are as follows:

United States Coal and Coke Co.	4,552,132
Consolidation Coal Co.	4,021,808
Pocahontas Fuel Co., Inc.	2,443,160
Island Creek Coal Co.	1,843,742
Davis Coal and Coke Co.	1,658,335
New River and Pocahontas Consolidated Coal Co.	1,649,876
Solvay Collieries Co.	1,102,655

During the period covered by this report, 79 coke plants within the state manufactured 2,533,314 net tons of coke, which is an increase over the previous year of 575,682 net tons, or 29.41 per cent.

During the year there were employed at the mines and coke ovens within the state 88,665 persons, an increase over the previous year of 8607 persons. The total number employed were distributed as follows:

Pick miners	17,839
Machine miners	25,634
Machine runners and helpers	4,905
Inside laborers	21,987
Outside laborers	15,730
Coke workers	2,570

While this shows a large increase in the number employed, yet the number of days worked was reduced to 215, which is a decrease under the previous year of 17 days, and which accounts

in a great measure for the small increase in production. These employees were classified as to nationality as follows:

American (white)	48,237
Negroes	18,128
Italians	7,388
Hungarians	4,346
Polish	2,117
Slavish	1,215
Austrian	1,833
Russian	1,362
Other nationalities	4,039
Total	88,665

The mines of the state during the past year worked but 215 days as against 232 days last year, which accounts in a great measure for the small increase in production. The equipment of the coal companies of the state is such as to warrant the production of at least 125,000,000 gross tons annually. I am convinced that this production would have been made had it not been for the lack of transportation facilities and shortage of railroad cars which continued throughout the entire year.

The average price received by pick miners during the year for run-of-mine coal was 69c., which is an increase over the previous year of 17c. per ton. The average tonnage produced by each pick miner was 1649 gross tons, a decrease of 50 tons under the year 1916. The average annual wage of pick miners (all pick miners included) was \$1137.81, an increase over last year of \$254.33. This shows that while the miners worked fewer days and produced less coal, yet their wages were increased 28.80 per cent.

The average selling price of coal shipped from the mines in the state was \$2.26 per gross ton, an increase of \$1.17 over last year. At this price the value of coal produced amounted to \$180,363,033.52, an increase over the previous year of \$87,969,481.03. During this same period coke was sold f.o.b. at the ovens at an average price of \$4.77 per net ton, an increase over the previous year of \$2.76 per ton. The total value of coke produced was \$12,083,907.78, an increase over last year of \$7,972,880.58, thus making a total increase in value of the production of the state of \$95,942,361.61.

During the year there were 394 lives lost in connection with the mine operations. Of this number 348 were killed inside and 46 outside the mines, this showing a decrease in the number of fatal accidents of 22 inside and an increase of accidents occurring outside the mines of 17, making a net reduction in the number of fatalities of 5. During this time there were 993 nonfatal accidents at the mines, 826 of which were inside and 167 outside, which is a decrease under the previous year of 184.

Two explosions occurred within the state, one inside and one outside the mine. On Oct. 19, 1916, a gas explosion at Jamison No. 7 mine of the Jamison Coal Co., in Marion County, killed 10 persons; and on Apr. 18, 1917, five men were killed at Linden mine of the Hutchinson Coal Co., in Mason County, when lightning struck the powder mag-

azine from which they were getting their daily supply of powder.

For each life lost within the mine during the year there was 229,329 gross tons of coal mined, which is an increase over the previous year of 14,650 gross tons for each fatality. The 348 lives lost inside the mines occurred at 262 mines, employing 29,530 persons inside, which produced 36,299,057 gross tons of coal; while the remaining 924 mines worked the entire year without the loss of a single life and produced 43,507,595 gross tons. The causes of fatal accidents are summarized as follows:

Killed by explosions (all forms)	12
Killed by fall of roof and coal	218
Killed by mine cars	51
Killed by electrocutions	20
Killed by other causes	47
Total	348

The ratio of persons killed per 1000 men employed inside the mines during the year was 4.95.

The past year has witnessed considerable improvement in the general condition of the mines of the state. Statistics are not kept of these improvements and it is therefore impossible to give them by item. The coal companies have not only added greatly to their equipment and sidetrack facilities, but have spent millions of dollars during the year for the betterment of the

sanitary and safety conditions of the mines, which I am safe in saying places the mines of West Virginia second to none in this country.

In conclusion I desire to say that this department throughout the entire year has received the hearty coöperation of all the coal companies, miners and mine laborers, which has been the chief factor in placing this state in the position it now occupies among the coal industries of the country.

Northern West Virginia

BY H. A. WILLIAMSON

Fairmont, W. Va.

WRITING a résumé for northern West Virginia for 1917 is like digging a jigger out of your leg—the harder you dig the deeper he goes.

It is unnecessary to enlarge on the car shortage—everyone knows about it. Had there been even a fair car supply the labor shortage would have been serious, but under the circumstances few or no steps have been taken, or needed to be taken, to get the men to work. From present indications it looks as if this condition would continue indefinitely. Should the railroads or Federal Government find means to supply cars, there is no doubt

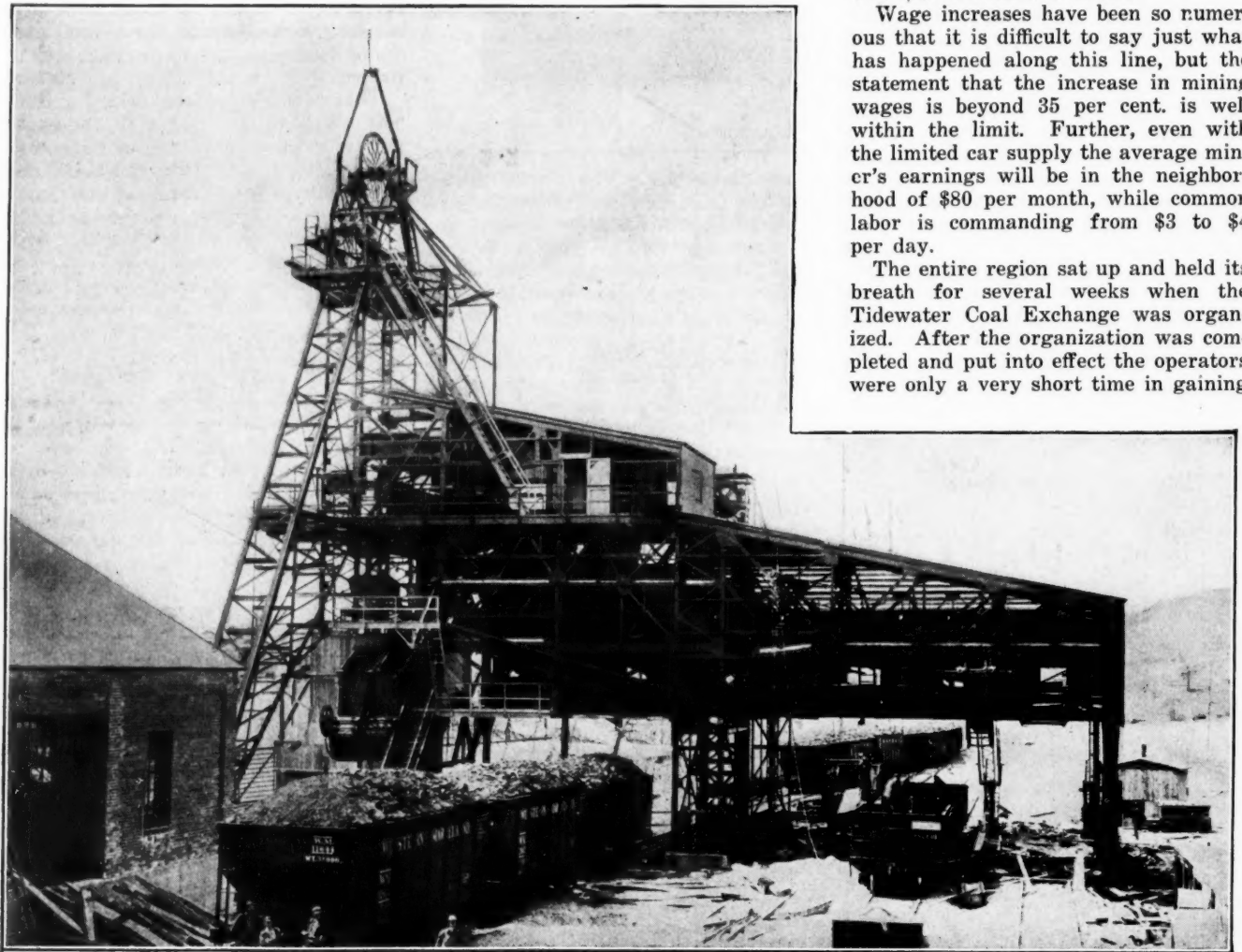
but that the region could and would double its present production, and as the coal is so badly needed it appears to be squarely up to someone to furnish cars. Should these cars be furnished there would immediately exist a shortage of labor, but this could be overcome and in any event does not look imminent at this time.

In regard to Federal price regulation much has been written but little said. It is possible that some small wagon-loading mines or mines working at particular disadvantage may have been forced out, or some disgruntled operator may have curtailed his output. On the whole the output of the region is just as great as the car supply will allow it to be, and the operators are getting out all the coal they can ship. It might be mentioned in passing that there are in the region about 50 mines now loading coal exclusively by use of horse teams or auto trucks.

On the part of labor, the wage regulation so far appears satisfactory. What would happen if there were plenty of work and the Government regulation to fine men \$1 for each day they did not work was carried out, is a question, but it is probable that men who did not work their best would get little sympathy; with present scarcity of work, however, it will probably be a small income the American Red Cross will derive from this source.

Wage increases have been so numerous that it is difficult to say just what has happened along this line, but the statement that the increase in mining wages is beyond 35 per cent. is well within the limit. Further, even with the limited car supply the average miner's earnings will be in the neighborhood of \$80 per month, while common labor is commanding from \$3 to \$4 per day.

The entire region sat up and held its breath for several weeks when the Tidewater Coal Exchange was organized. After the organization was completed and put into effect the operators were only a very short time in gaining



TYPE OF MODERN TIPPLE BEING ERECTED IN NORTHERN WEST VIRGINIA



FLOOR OF ONE OF THE DEPARTMENT STORES IN NORTHERN WEST VIRGINIA

confidence, and at present practically everyone seems to be at least sufficiently satisfied as to consider serious objection to any of the commissioner's rulings unnecessary. There are still, however, many details for the Exchange to work out, but this appears to be progressing smoothly and, all in all, one might say that up to the present time the Exchange is a success.

Government control of railroads and mines has been discussed, but in reality has never been seriously considered; and before such an event can actually take place there will have to be many developments not now anticipated. Much more to the point would be some method by which the Government could stimulate river coal traffic. This has been discussed in the past, and to the sorrow of certain parties, attempted. At present no effort is being made to load river coal, and no serious plans of such nature appear under way. Undoubtedly quite an appreciable quantity of coal could be moved in this manner, but every attempt of this nature has failed in the past and there is no wild rush of operators to lose more money on such a venture. It would, therefore, appear to be up to the Federal Government to figure out some plan if such coal would help the situation any.

The Fairmont Lake trade probably suffered as severely as any line of outgoing coal, but here again it has been due to lack of cars. Certain special offers were made if the mines would work continuously on Lake coal for specific periods and then either no effort, or at least no successful effort, was made to furnish such mines with cars. So that after a very short time the matter drifted back to where it had been before the special offer was made.

If there is a shortage of coal in the Northwest during this winter it is not to be blamed on the operators, because it is absolutely true that the operators made desperate and continued efforts to get coal to the Lakes.

The coke trade has been revived by the enormous demand for this character of fuel. Every coke oven in the region that was at all possible of repair has been put into operation. The coke tonnage of 1916 increased by half over 1915, and 1917 will probably double 1916. This, of course, is largely due to the high price coke is commanding. Should coke prices be regulated to anything like normal it is probable this production would almost entirely disappear as the region does not appear to be interested in the manufacture of coke except under abnormal conditions.

More or less activity has continued in coal lands and there has continued the strong tendency for this to extend beyond the Pittsburgh seam and take in the Sewickley coal. This Sewickley, lying above the Pittsburgh and running from 5 ft. thick down to nothing, has, in the past, been considered either as worthless or at best a dangerous venture in which to place money. Now, however, purchases of Sewickley coal have been made and several companies are producing this coal. Under present conditions there is ready sale for all the Sewickley that can be mined, but it is a question in the minds of many as to what will happen to these mines in the future, both on account of the general quality of this coal, the erratic natural conditions of the seam and also the possible damage it has suffered, and will continue to suffer through removal of the Pittsburgh seam below it.

Probably the largest single sale of Pittsburgh coal was the transfer of some 11,000 acres in what has been known in past years as "The Empire Field"—this field is largely tributary to the Monongahela Railway.

The Monongahela Ry. has now been opened for over a year, and there are 16 mines operating on it between Fairmont and the Pennsylvania state line. These are mostly in the Pittsburgh seam, although some Sewickley and some Red Stone coal are being produced. There are also some eight or ten "wagon loaders," or "snow bird" mines, operating on this line at and near Fairmont.

On the two branches of the Western Maryland Ry., built during the past two years and connecting with the Baltimore & Ohio R.R., there have been opened some 17 mines, some of these being the finest mines of the region, notably Mines Nos. 86 and 87 of the Consolidation Coal Co. at Ida May and Carolina, and the same company's mines Nos. 88, 89 and 90 at Wyatt.

The continued work along the "safety-first" idea is showing results, and the region is getting into better condition steadily. Unfortunately, however, one accident occurred during the year to which special attention should be called. Two men, supposedly thoroughly trained and of sufficient experience, were killed within one of the mines while wearing an approved type of rescue, or oxygen, helmet. It is said that these men remained underground beyond the time limit of the apparatus. Aside from the deplorable loss of life, this accident serves a good purpose in calling attention and pointing out that entirely too much confidence is placed in this class of equipment and that far more care should be exercised in using

such equipment, no matter how efficient it may be.

The exhaustion of the natural gas of the region is causing some concern, and talk of a byproduct plant still continues. Along this line the Monongahela Valley Traction Co. is erecting a Lymn producer-gas plant, or what is possibly better known as a byproduct-producer plant. The initial plant will consist of seven units, consuming about 75 tons of coal per day and producing the equivalent of 1,500,000 ft. of natural gas in addition to the byproducts. This plant is the second of the kind to be erected in the United States, and if it proves successful will probably lead to large developments along this line. The electrification of the mines of the region continues, and the same company (Monongahela Valley Traction Co.) is adding another unit to its power plant at Hutchinson. This plant being gas driven, it would appear that eventually it will have to be supplied with artificial gas. The Monongahela Valley Traction Co. also has under construction a steam turbine-driven power plant which will produce 100,000 kw. when complete. The building for this plant, 170 x 200-ft., is located at Rivesville, W. Va., and is well under way.

In lines closely connected with the coal trade are noted the Monongahela Powder Co., a new concern located near Fairmont, manufacturing explosives for use in the mines; also the Fairmont Chemical Co., located east of Fairmont, producing sulphuric acid from sulphur balls, or coal brasses. These brasses, formerly a waste product and object of more or less expense at the mines, are now sold to the acid plant. The acid in turn is largely used in byproduct plants and will be available for such a plant should one be erected in the neighborhood.

To undertake to make a statement as to what will happen in 1918 in northern West Virginia coal circles is beyond the power of human mind. Should a way be found to furnish adequate car supply and to move the cars to destination after they are loaded, it appears that the region will be able

to supply the demand for its coal. There will, of course, remain the serious question of labor shortage, but this is not nearly so bad as the car shortage and can probably be largely overcome.

By and large, while there is a certain amount of pessimistic talk, there appears to be an undercurrent of confidence that business will continue good in coal lines. It is also to be noted that every man and boy, from the youngest trapper to the most successful operator, is boosting the coal business and striving to make it go. Here there are no unpatriotic speeches or publications, no attempts to keep men from working, no efforts to destroy property or to hamper the Government. It is plain that the entire region is straining at the harness in one mighty effort to do its "derndest" to help win the war.

Wyoming

District No. 1

BY GEORGE BLACKER

State Mine Inspector, Cumberland, Wyo.

THE year 1917 is the banner year in my district, and with the increased tonnage goes the matter of improvements so vital and necessary to the successful management of the coal industry. The demand for coal, especially of the kind produced in this district, has been unprecedented, taxing the capacity of the mines to their utmost and not being able to supply it, with the result that other concerns seeing the unlimited opportunities of these coal fields are investing their capital in the development of new mines in order to meet the present and future requirements of the trade. Therefore new mines are opening on well established coal seams; old prospects are being cleaned out with a view to their development, and the activity all along the line must result in a production of many hundred thousand tons more than our present record shows.

The high cost of living and the mutterings of dissatisfaction incident

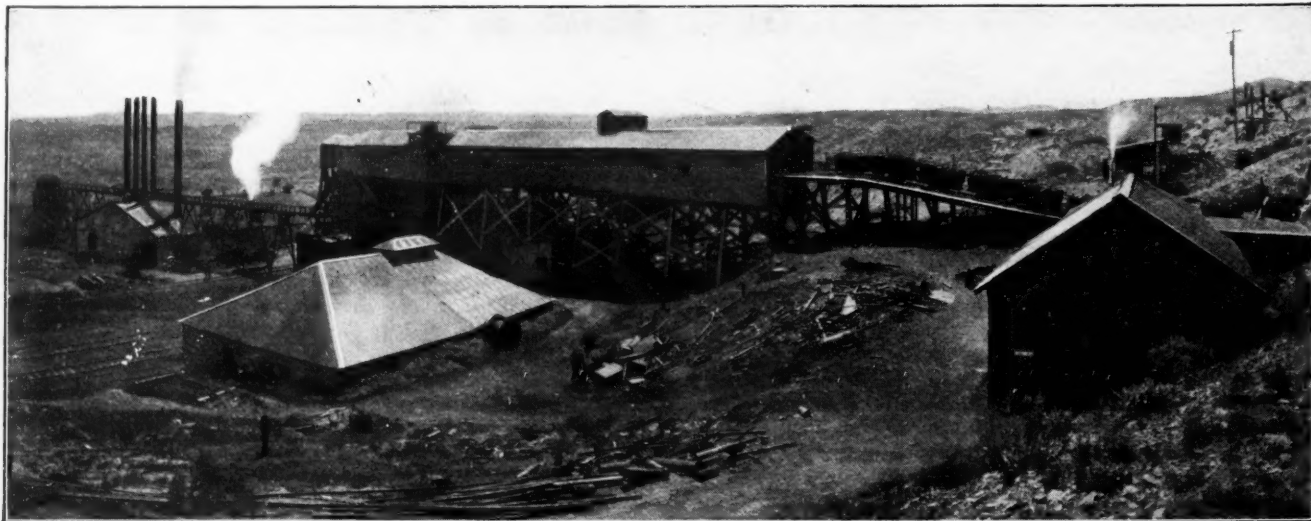
thereto happily found a solution when the representatives of the United Mine Workers of America and the managers of the different companies met for the purpose of adjusting the wages in this district. The result of the convention was a general and generous increase from the top to the bottom, and I venture to say that the present scale of wages is as great as, if not greater than, that in any district in the Union. The settlement of the wage question has brought about an era of good will and contentment and a further desire on the part of the miners to do their ut-



GEORGE BLACKER

most toward the production of coal, and in this manner satisfy the demand made upon their energies, with the certain knowledge that in doing so their pay check will read bigger and will be ample to cover all their wants.

Shortage of labor has compelled, in some instances, in order to keep up the output, withdrawing of pillars, which had better be left in under ordinary conditions. To try and reach a higher point of economy and efficiency, the Kemmerer Coal Co. has this year installed a battery of Stirling boilers to replace its old plant, with all modern improvements known to the manufacturers of these boilers for economy and efficiency. Locomotive haulage is being installed in No. 6 Mine, sublet.



PLANT OF THE BIG HORN COLLIERIES CO., CROSBY, WYOMING

By use of a counterbalance at No. 5 main hoist, sublet, the monthly consumption of power has been reduced from approximately 30,000 to 9800 kilowatt-hours.

The tonnage by counties in District No. 1 during the past year, the fig-

ures for which were furnished by various operators, is as follows: Lincoln County, 2,651,093; Uinta County, 70,269; Carbon County, 844,331; Sweetwater County, 3,082,055. The number of men killed in 1917 totaled 36; the number of men injured, 194; the number of wives made widows, 14; the number of children made fatherless, 32.

The causes of fatal accidents in the coal mines of this state for the year were attributed as follows: Falls of rock, 14; falls of coal, 11; mine cars

SUMMARY OF COAL PRODUCTION IN DISTRICT NO. 1, WYOMING

Year	Tons	Men Employed	Number of Fatal Accidents	Total Coal for Each Life Lost	Number Employees for Each Life Lost	Number Killed per 1,000 Employed
1911	4,865,761	5,446	22	221,170	248	4.1
1912	5,500,253	5,673	35	157,150	162	6.1
1913	5,229,817	5,670	21	249,038	270	3.7
1914	5,137,843	6,069	43	123,670	141	7.7
1915	4,460,169	5,363	18	247,787	298	3.3
1916	5,526,832	4,838	22	251,220	222	4.5
1917	6,047,748	5,176	36	167,993	144	7.0

ty to employees and more economical production for the mines. Present indications point to a prosperous period of activity in the industry for the district, and new mines are under development and others are in prospect of development. The success of the industry will depend largely upon the ability of the railroads to furnish enough cars for the output.

The total number of men employed during the fiscal year was 2197, being an increase of 138 over the previous year. The men shared in the general prosperity, there being an increase of 26 per cent. in the number of days worked, and of 19 per cent. in the number of tons produced per man employed.

There were seven fatal accidents during the year, making one man killed for every 391,608 tons produced and 3.18 killed for each 1000 employed. There were 51 nonfatal accidents reported for the year. Of these 44 per cent. were due to fall of rock or coal and 27 per cent. to moving cars. There was one man injured for each 49,850 tons produced, and 25.13 injured for each 1000 employed.

SUMMARY OF THE ITEMS SHOWN IN THE REPORT, DISTRICT NO. 1, WYOMING

Number of counties producing coal	4
Number of shipping mines	36
Number of coal miners	2,231
Number of loaders	841
Total number of employees	5,176
Average days of active operation all mines	244
Number tons of coal undercut	3,527,053
Number tons of coal blasted from the solid	2,520,695
Total tons of coal produced	6,047,748
Number of fatal accidents	36
Number of nonfatal accidents	194
Tons of coal produced to each fatal accident	167,993
Number of employees to each fatal accident	144
Ratio of fatal accidents per 1,000 employees	7

and haulage motors, 5; railroad cars, 1; blast, 2; electrocuted, 1; miscellaneous, 2.

The number of men employed in each county is as follows: Lincoln, 1905; Sweetwater, 2576; Carbon, 630; Uinta, 65.

Wyoming
District No. 2

BY GEORGE N. AKIN
State Mine Inspector, Sheridan, Wyo.

A CONSERVATIVE estimate of the total coal production in the district for the calendar year 1917, based upon the annual report of Sept. 30, 1917, would be about 2,800,000 tons, exclusive of a large number of small mines, employing less than 10 men, which make no report to the inspector.

This was distributed on the basis of about 43 per cent. to the railroads, 49 per cent. to commercial channels, the remainder being slack shipped or coal consumed locally.

The year has been a prosperous one for the industry in every way, the figures showing an increased tonnage, higher rates of compensation to employees and increased market values. The shortage in railroad cars has greatly reduced the net output. The

of entry, for consumption for the first three quarters of 1917, are as shown in Table I.



JOHN T. STIRLING

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TABLE I—PRODUCTION FOR THREE QUARTERS OF 1917

Quarter	Lignite, Tons	Bituminous, Tons	Anthracite, Tons
First, ending Mar. 31, 1917	744,700	649,318	37,817
Second ending, June 30, 1917	227,879	177,579	11,387
Third, ending September 30, 1917	619,467	670,935	33,643
Totals	1,592,046	1,497,832	82,847

The figures which are given in Table I make a total of 3,172,725 tons of coal from all fields for the first three quarters of 1917.

The following table shows the number of tons of anthracite and bituminous coals sold and their value for the first three quarters of 1917:

Quarter	Tons	Value
First	571,739	\$884,574
Second	525,807	1,569,224
Third	1,115,955	3,987,979
Totals	2,213,501	\$6,441,777

British Columbia

BY GEORGE WILKINSON
Chief Inspector of Mines, Victoria, B. C.

DURING the year 1917 there was mined in the Province of British Columbia 2,408,027 long tons of coal, a decrease of 77,553 tons in comparison with 1916. Of this amount 1,696,235 tons was mined by the collieries of Vancouver Island, 151,817 tons by the collieries of the Nicola Princeton district and 557,975 tons by the collieries of the Crow's Nest Pass district. The following are the comparative tonnages for the various companies and districts for 1917-16:

COAST DISTRICT VANCOUVER ISLAND

	1917	1916
Canadian Collieries (D), Ltd.	800,348	705,966
Western Fuel Co.	658,001	554,610
Pacific Coast Coal Mines, Ltd.	150,517	153,112
British Columbia Coal Mining Co.	61,547	78,443
Nanoose Collieries, Ltd.	27,822	630
Totals	1,698,235	1,492,761

(a) Increase. (b) Decrease.

The production of the Vancouver Island collieries for 1917 was increased 205,474 tons over the output of 1916.

COAST DISTRICT, SUB-DISTRICT OF NICOLA PRINCETON

	1917	1916
Middlesboro Collieries, Ltd.	83,459	49,005
Merritt Collieries, Ltd.	14,000	338
Inland Coal and Coke Co., Ltd.	7,349	31,295
Pacific Coast Colliery		453
Princeton Coal and Land Co.	46,919	29,458
Totals	151,727	110,549

An increase of 41,268 tons.

CROW'S NEST PASS DISTRICT

	1917	1916
Crow's Nest Pass Coal Co.	451,652	813,250
Corbin Coal and Coke Co.	106,323	69,020
Totals	557,975	882,270

A decrease of 324,295 tons below 1916.

Of the total amount of coal mined, approximately 291,755 tons was converted into coke. The total coke production for British Columbia was approximately 175,053 long tons. Of this amount the Crow's Nest Pass collieries made 144,654 tons. The Canadian Collieries (D), Ltd., made 30,399 tons at its ovens at Union Bay, Comox.

The prospects of a large production of coal in British Columbia were bright at the beginning of the year, and the

azine from which they were getting their daily supply of powder.

For each life lost within the mine during the year there was 229,329 gross tons of coal mined, which is an increase over the previous year of 14,650 gross tons for each fatality. The 348 lives lost inside the mines occurred at 262 mines, employing 29,530 persons inside, which produced 36,299,057 gross tons of coal; while the remaining 924 mines worked the entire year without the loss of a single life and produced 43,507,595 gross tons. The causes of fatal accidents are summarized as follows:

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Northern West Virginia

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Fairmont, W. Va.

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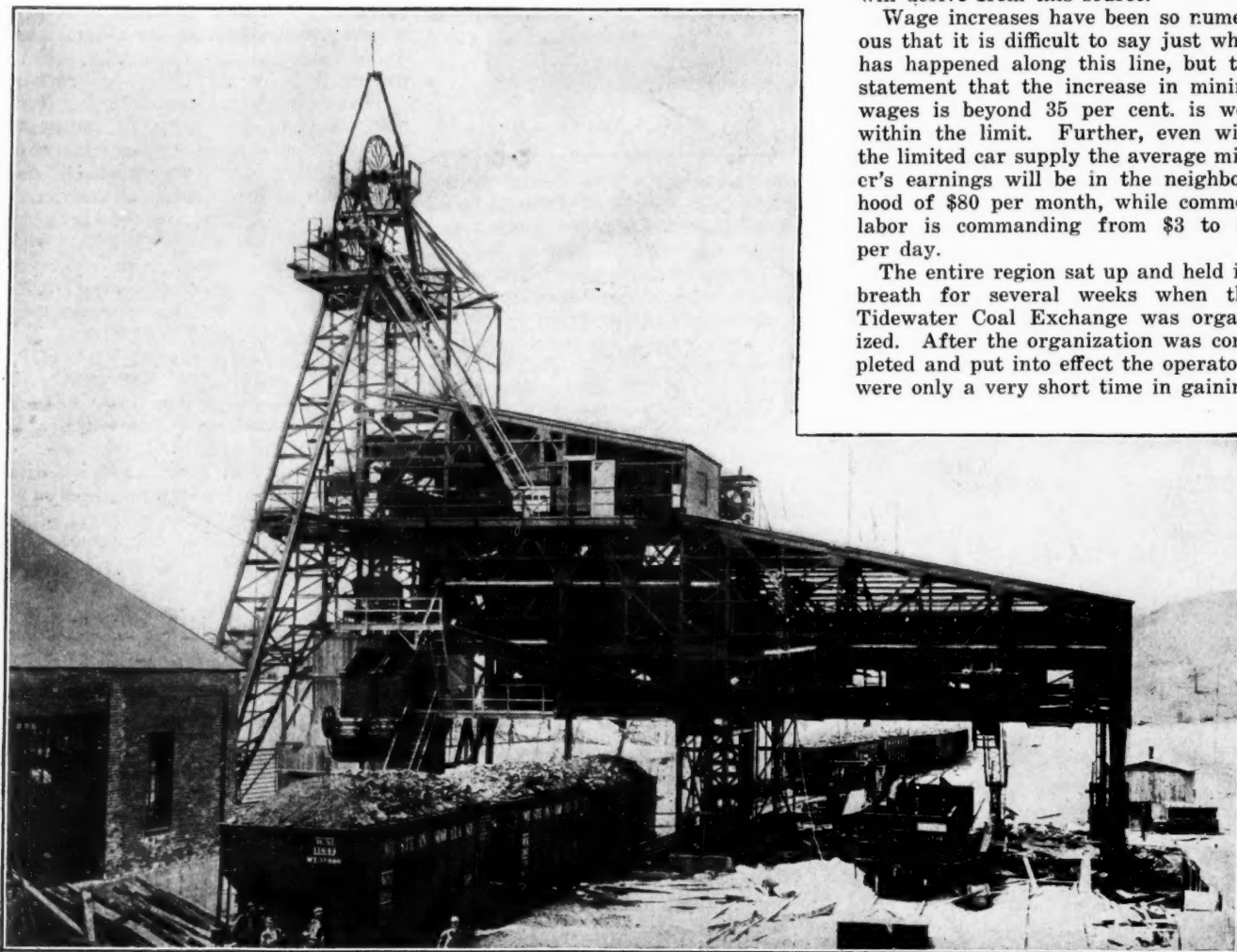
but that the region could and would double its present production, and as the coal is so badly needed it appears to be squarely up to someone to furnish cars. Should these cars be furnished there would immediately exist a shortage of labor, but this could be overcome and in any event does not look imminent at this time.

In regard to Federal price regulation much has been written but little said. It is possible that some small wagon-loading mines or mines working at particular disadvantage may have been forced out, or some disgruntled operator may have curtailed his output. On the whole the output of the region is just as great as the car supply will allow it to be, and the operators are getting out all the coal they can ship. It might be mentioned in passing that there are in the region about 50 mines now loading coal exclusively by use of horse teams or auto trucks.

On the part of labor, the wage regulation so far appears satisfactory. What would happen if there were plenty of work and the Government regulation to fine men \$1 for each day they did not work was carried out, is a question, but it is probable that men who did not work their best would get little sympathy; with present scarcity of work, however, it will probably be a small income the American Red Cross will derive from this source.

Wage increases have been so numerous that it is difficult to say just what has happened along this line, but the statement that the increase in mining wages is beyond 35 per cent. is well within the limit. Further, even with the limited car supply the average miner's earnings will be in the neighborhood of \$80 per month, while common labor is commanding from \$3 to \$4 per day.

The entire region sat up and held its breath for several weeks when the Tidewater Coal Exchange was organized. After the organization was completed and put into effect the operators were only a very short time in gaining



TYPE OF MODERN TIPPLE BEING ERECTED IN NORTHERN WEST VIRGINIA



FLOOR OF ONE OF THE DEPARTMENT STORES IN NORTHERN WEST VIRGINIA

confidence, and at present practically everyone seems to be at least sufficiently satisfied as to consider serious objection to any of the commissioner's rulings unnecessary. There are still, however, many details for the Exchange to work out, but this appears to be progressing smoothly and, all in all, one might say that up to the present time the Exchange is a success.

Government control of railroads and mines has been discussed, but in reality has never been seriously considered; and before such an event can actually take place there will have to be many developments not now anticipated. Much more to the point would be some method by which the Government could stimulate river coal traffic. This has been discussed in the past, and to the sorrow of certain parties, attempted. At present no effort is being made to load river coal, and no serious plans of such nature appear under way. Undoubtedly quite an appreciable quantity of coal could be moved in this manner, but every attempt of this nature has failed in the past and there is no wild rush of operators to lose more money on such a venture. It would, therefore, appear to be up to the Federal Government to figure out some plan if such coal would help the situation any.

The Fairmont Lake trade probably suffered as severely as any line of outgoing coal, but here again it has been due to lack of cars. Certain special offers were made if the mines would work continuously on Lake coal for specific periods and then either no effort, or at least no successful effort, was made to furnish such mines with cars. So that after a very short time the matter drifted back to where it had been before the special offer was made.

If there is a shortage of coal in the Northwest during this winter it is not to be blamed on the operators, because it is absolutely true that the operators made desperate and continued efforts to get coal to the Lakes.

The coke trade has been revived by the enormous demand for this character of fuel. Every coke oven in the region that was at all possible of repair has been put into operation. The coke tonnage of 1916 increased by half over 1915, and 1917 will probably double 1916. This, of course, is largely due to the high price coke is commanding. Should coke prices be regulated to anything like normal it is probable this production would almost entirely disappear as the region does not appear to be interested in the manufacture of coke except under abnormal conditions.

More or less activity has continued in coal lands and there has continued the strong tendency for this to extend beyond the Pittsburgh seam and take in the Sewickley coal. This Sewickley, lying above the Pittsburgh and running from 5 ft. thick down to nothing, has, in the past, been considered either as worthless or at best a dangerous venture in which to place money. Now, however, purchases of Sewickley coal have been made and several companies are producing this coal. Under present conditions there is ready sale for all the Sewickley that can be mined, but it is a question in the minds of many as to what will happen to these mines in the future, both on account of the general quality of this coal, the erratic natural conditions of the seam and also the possible damage it has suffered, and will continue to suffer through removal of the Pittsburgh seam below it.

Probably the largest single sale of Pittsburgh coal was the transfer of some 11,000 acres in what has been known in past years as "The Empire Field"—this field is largely tributary to the Monongahela Railway.

The Monongahela Ry. has now been opened for over a year, and there are 16 mines operating on it between Fairmont and the Pennsylvania state line. These are mostly in the Pittsburgh seam, although some Sewickley and some Red Stone coal are being produced. There are also some eight or ten "wagon loaders," or "snow bird" mines, operating on this line at and near Fairmont.

On the two branches of the Western Maryland Ry., built during the past two years and connecting with the Baltimore & Ohio R.R., there have been opened some 17 mines, some of these being the finest mines of the region, notably Mines Nos. 86 and 87 of the Consolidation Coal Co. at Ida May and Carolina, and the same company's mines Nos. 88, 89 and 90 at Wyatt.

The continued work along the "safety-first" idea is showing results, and the region is getting into better condition steadily. Unfortunately, however, one accident occurred during the year to which special attention should be called. Two men, supposedly thoroughly trained and of sufficient experience, were killed within one of the mines while wearing an approved type of rescue, or oxygen, helmet. It is said that these men remained underground beyond the time limit of the apparatus. Aside from the deplorable loss of life, this accident serves a good purpose in calling attention and pointing out that entirely too much confidence is placed in this class of equipment and that far more care should be exercised in using

such equipment, no matter how efficient it may be.

The exhaustion of the natural gas of the region is causing some concern, and talk of a byproduct plant still continues. Along this line the Monongahela Valley Traction Co. is erecting a Lymn producer-gas plant, or what is possibly better known as a byproduct-producer plant. The initial plant will consist of seven units, consuming about 75 tons of coal per day and producing the equivalent of 1,500,000 ft. of natural gas in addition to the byproducts. This plant is the second of the kind to be erected in the United States, and if it proves successful will probably lead to large developments along this line. The electrification of the mines of the region continues, and the same company (Monongahela Valley Traction Co.) is adding another unit to its power plant at Hutchinson. This plant being gas driven, it would appear that eventually it will have to be supplied with artificial gas. The Monongahela Valley Traction Co. also has under construction a steam turbine-driven power plant which will produce 100,000 kw. when complete. The building for this plant, 170 x 200-ft., is located at Rivesville, W. Va., and is well under way.

In lines closely connected with the coal trade are noted the Monongahela Powder Co., a new concern located near Fairmont, manufacturing explosives for use in the mines; also the Fairmont Chemical Co., located east of Fairmont, producing sulphuric acid from sulphur balls, or coal brasses. These brasses, formerly a waste product and object of more or less expense at the mines, are now sold to the acid plant. The acid in turn is largely used in byproduct plants and will be available for such a plant should one be erected in the neighborhood.

To undertake to make a statement as to what will happen in 1918 in northern West Virginia coal circles is beyond the power of human mind. Should a way be found to furnish adequate car supply and to move the cars to destination after they are loaded, it appears that the region will be able

to supply the demand for its coal. There will, of course, remain the serious question of labor shortage, but this is not nearly so bad as the car shortage and can probably be largely overcome.

By and large, while there is a certain amount of pessimistic talk, there appears to be an undercurrent of confidence that business will continue good in coal lines. It is also to be noted that every man and boy, from the youngest trapper to the most successful operator, is boosting the coal business and striving to make it go. Here there are no unpatriotic speeches or publications, no attempts to keep men from working, no efforts to destroy property or to hamper the Government. It is plain that the entire region is straining at the harness in one mighty effort to do its "derndest" to help win the war.

Wyoming

District No. 1

BY GEORGE BLACKER

State Mine Inspector, Cumberland, Wyo.

THE year 1917 is the banner year in my district, and with the increased tonnage goes the matter of improvements so vital and necessary to the successful management of the coal industry. The demand for coal, especially of the kind produced in this district, has been unprecedented, taxing the capacity of the mines to their utmost and not being able to supply it, with the result that other concerns seeing the unlimited opportunities of these coal fields are investing their capital in the development of new mines in order to meet the present and future requirements of the trade. Therefore new mines are opening on well established coal seams; old prospects are being cleaned out with a view to their development, and the activity all along the line must result in a production of many hundred thousand tons more than our present record shows.

The high cost of living and the mutterings of dissatisfaction incident

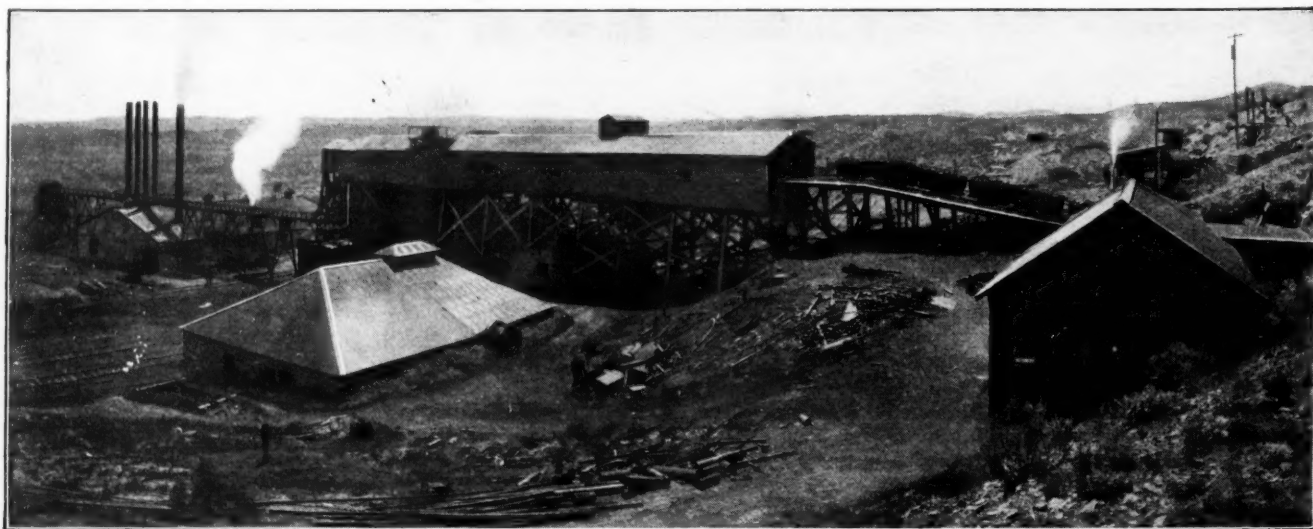
thereto happily found a solution when the representatives of the United Mine Workers of America and the managers of the different companies met for the purpose of adjusting the wages in this district. The result of the convention was a general and generous increase from the top to the bottom, and I venture to say that the present scale of wages is as great as, if not greater than, that in any district in the Union. The settlement of the wage question has brought about an era of good will and contentment and a further desire on the part of the miners to do their ut-



GEORGE BLACKER

most toward the production of coal, and in this manner satisfy the demand made upon their energies, with the certain knowledge that in doing so their pay check will read bigger and will be ample to cover all their wants.

Shortage of labor has compelled, in some instances, in order to keep up the output, withdrawing of pillars, which had better be left in under ordinary conditions. To try and reach a higher point of economy and efficiency, the Kemmerer Coal Co. has this year installed a battery of Stirling boilers to replace its old plant, with all modern improvements known to the manufacturers of these boilers for economy and efficiency. Locomotive haulage is being installed in No. 6 Mine, sublet.



PLANT OF THE BIG HORN COLLIERIES CO., CROSBY, WYOMING

By use of a counterbalance at No. 5 main hoist, sublet, the monthly consumption of power has been reduced from approximately 30,000 to 9800 kilowatt-hours.

The tonnage by counties in District No. 1 during the past year, the fig-

ures for which were furnished by various operators, is as follows: Lincoln County, 2,651,093; Uinta County, 70,269; Carbon County, 844,331; Sweetwater County, 3,082,055. The number of men killed in 1917 totaled 36; the number of men injured, 194; the number of wives made widows, 14; the number of children made fatherless, 32.

The causes of fatal accidents in the coal mines of this state for the year were attributed as follows: Falls of rock, 14; falls of coal, 11; mine cars

SUMMARY OF THE ITEMS SHOWN IN THE REPORT, DISTRICT NO. 1, WYOMING

Number of counties producing coal.....	4
Number of shipping mines.....	36
Number of coal miners.....	2,231
Number of loaders.....	841
Total number of employees.....	5,176
Average days of active operation all mines.....	244
Number tons of coal undercut.....	3,527,053
Number tons of coal blasted from the solid.....	2,520,695
Total tons of coal produced.....	6,047,748
Number of fatal accidents.....	36
Number of nonfatal accidents.....	194
Tons of coal produced to each fatal accident.....	167,993
Number of employees to each fatal accident.....	144
Ratio of fatal accidents per 1,000 employees.....	7

and haulage motors, 5; railroad cars, 1; blast, 2; electrocuted, 1; miscellaneous, 2.

The number of men employed in each county is as follows: Lincoln, 1905; Sweetwater, 2576; Carbon, 630; Uinta, 65.

Wyoming

District No. 2

BY GEORGE N. AKIN

State Mine Inspector, Sheridan, Wyo.

A CONSERVATIVE estimate of the total coal production in the district for the calendar year 1917, based upon the annual report of Sept. 30, 1917, would be about 2,800,000 tons, exclusive of a large number of small mines, employing less than 10 men, which make no report to the inspector.

This was distributed on the basis of about 43 per cent. to the railroads, 49 per cent. to commercial channels, the remainder being slack shipped or coal consumed locally.

The year has been a prosperous one for the industry in every way, the figures showing an increased tonnage, higher rates of compensation to employees and increased market values. The shortage in railroad cars has greatly reduced the net output. The

mines were operated on an average of 18 days per month for the year, with a production of 1247 tons per man employed per year.

Many improvements have been made, and are under construction, at the various mines that will give greater safe-

ty to employees and more economical production for the mines. Present indications point to a prosperous period of activity in the industry for the district, and new mines are under development and others are in prospect of development. The success of the industry will depend largely upon the ability of the railroads to furnish enough cars for the output.

The total number of men employed during the fiscal year was 2197, being an increase of 138 over the previous year. The men shared in the general prosperity, there being an increase of 26 per cent. in the number of days worked, and of 19 per cent. in the number of tons produced per man employed.

There were seven fatal accidents during the year, making one man killed for every 391,608 tons produced and 3.18 killed for each 1000 employed. There were 51 nonfatal accidents reported for the year. Of these 44 per cent. were due to fall of rock or coal and 27 per cent. to moving cars. There was one man injured for each 49,850 tons produced, and 25.13 injured for each 1000 employed.

Alberta, Canada

BY JOHN T. STIRLING

Chief Inspector of Mines, Alberta, Can.

IN THE province of Alberta, Can., the quantities and values of the various coals entered at the ports



JOHN T. STIRLING

of entry, for consumption for the first three quarters of 1917, are as shown in Table I.

TABLE I—PRODUCTION FOR THREE QUARTERS OF 1917

Quarter	Lignite, Tons	Bituminous, Tons	Anthracite, Tons
First, ending Mar. 31, 1917.....	744,700	649,318	37,817
Second ending, June 30, 1917.....	227,879	177,579	11,387
Third, ending September 30, 1917.....	619,467	670,935	33,643
Totals.....	1,592,046	1,497,832	82,847

The figures which are given in Table I make a total of 3,172,725 tons of coal from all fields for the first three quarters of 1917.

The following table shows the number of tons of anthracite and bituminous coals sold and their value for the first three quarters of 1917:

Quarter	Tons	Value
First.....	57,739	\$884,574
Second.....	525,807	1,569,224
Third.....	1,115,955	3,987,979
Totals.....	2,213,501	\$6,441,777

British Columbia

BY GEORGE WILKINSON

Chief Inspector of Mines, Victoria, B. C.

DURING the year 1917 there was mined in the Province of British Columbia 2,408,027 long tons of coal, a decrease of 77,553 tons in comparison with 1916. Of this amount 1,696,235 tons was mined by the collieries of Vancouver Island, 151,817 tons by the collieries of the Nicola Princeton district and 557,975 tons by the collieries of the Crow's Nest Pass district. The following are the comparative tonnages for the various companies and districts for 1917-16:

COAST DISTRICT VANCOUVER ISLAND

	1917	1916
Canadian Collieries (D), Ltd.....	800,348	705,966
Western Fuel Co.....	658,001	554,610
Pacific Coast Coal Mines, Ltd.....	150,517	153,112
British Columbia Coal Mining Co.....	61,547	78,443
Nanose Collieries, Ltd.....	27,822	630
Totals.....	1,698,235	1,492,761

(a) Increase. (b) Decrease.

The production of the Vancouver Island collieries for 1917 was increased 205,474 tons over the output of 1916.

COAST DISTRICT, SUB-DISTRICT OF NICOLA PRINCETON

	1917	1916
Middlesboro Collieries, Ltd.....	83,459	49,005
Merritt Collieries, Ltd.....	14,000	338
Inland Coal and Coke Co., Ltd.....	7,349	31,295
Pacific Coast Colliery.....	46,919	453
Princeton Coal and Land Co.....	46,919	29,458
Totals.....	151,727	110,549

An increase of 41,268 tons.

CROW'S NEST PASS DISTRICT

	1917	1916
Crow's Nest Pass Coal Co.....	451,652	813,250
Corbin Coal and Coke Co.....	106,323	69,020
Totals.....	557,975	882,270

A decrease of 324,295 tons below 1916.

Of the total amount of coal mined, approximately 291,755 tons was converted into coke. The total coke production for British Columbia was approximately 175,053 long tons. Of this amount the Crow's Nest Pass collieries made 144,654 tons. The Canadian Collieries (D), Ltd., made 30,399 tons at its ovens at Union Bay, Comox.

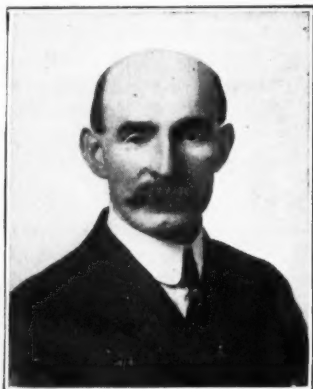
The prospects of a large production of coal in British Columbia were bright at the beginning of the year, and the

maximum tonnage for any month of the year was reached in March, when 244,145 tons was mined. In April a strike was declared at the Michel colliery, and on Apr. 5 a disastrous explosion occurred in No. 3 mine at Coal Creek colliery whereby 34 lives were lost. The men of the Coal Creek colliery were thereby thrown idle, and when operations were ordered to be resumed in the unaffected mines of the Coal Creek Colliery the men refused to report for work and joined the other parts of the Crow's Nest Pass district in a general strike. This strike was not settled until July and was responsible for a large reduction in the output of the Crow's Nest Pass collieries. No. 3 mine, Coal Creek, was unproductive for the balance of the year through the damage caused by the explosion.

Coupled with the explosion and strike as a factor in reducing the output is the shortage of labor, which has existed all the year. This has resulted in the closing down of some of the mines and the working of only single shifts in many of the others. The loss of output through various causes was very large.

ACCIDENTS FOR THE YEAR

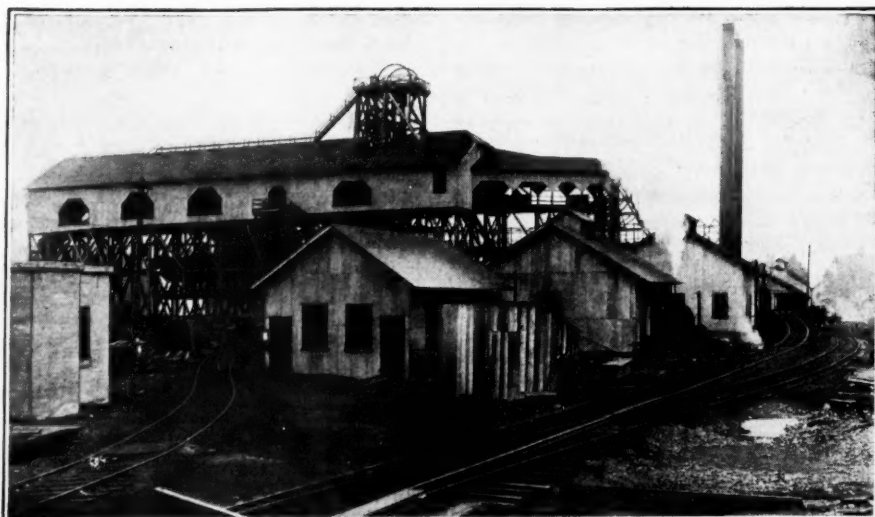
The number of fatal accidents for the year is great, due to two explosions, 34 being killed in one accident in the No. 3 mine of the Crow's Nest



GEORGE WILKINSON

Pass collieries on Apr. 5. Six bodies yet remain in that section of the mine to which indications point as being the point of origin of the explosion. It will take several months to penetrate into this district as the roadways are badly caved and completely blocked. Wolf safety lamps were used exclusively in this mine and no blast was allowed, so that origin of the explosion remains a mystery.

Another explosion occurred in the No. 6 mine of the Canadian Collieries (D), Ltd., Cumberland, B. C., whereby four lives were lost. This mine was a naked-light mine, explosive gas rarely being found. Three surveyors went out on Sunday morning, June 3, to make a survey of the mine, a fireboss being detailed to accompany them and examine any of the places they wished to enter. In going into one of the



NO. 1 SHAFT AND PITHEAD, RESERVE MINE, WESTERN FUEL CO., NANAIMO, B. C.

places, one of the surveyors followed too closely on the heels of the fireboss and ignited a small accumulation of firedamp, which in turn started the dust, the place having been freshly cut the night before by a Sullivan chain cutter. None of the men was burned sufficiently to cause death, but all four died from carbon monoxide poisoning.

The other fatal accidents for the year are as follows: By falls of roof and rock, 3; by mine car and haulage, 2; by electricity, 1, making a total of six by other causes than explosion and a total of 44 in all.

The Canadian Collieries (D), Ltd., is opening a new mine at South Wellington which will be known as No. 5 mine. This mine is being opened in the Douglas seam and should be a large producer during 1918.

In the same district the Granby Consolidated Mining, Smelting and Power Co. has acquired a large area and is proving by diamond drilling. The Douglas seam has been proved in this area, and a large mine will be opened. This mine should also be a large producer during 1918.

The coal produced in this mine is to be coked for use in the company's own smelter at Anyox, where the company is erecting a large battery of byproduct coke ovens at an estimated cost of a million and a half dollars.

During the year the Western Fuel Co. reopened the Harewood mine. This

mine is producing an average of 600 tons daily. Several other properties are being looked over by prospective purchasers and the outlook is good for Vancouver Island during 1918.

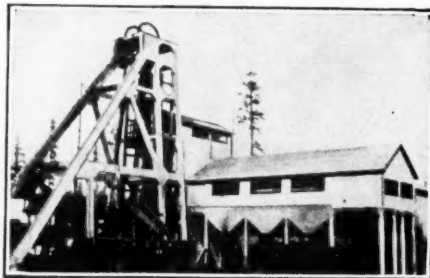
The Nanoose mine increased its output from 630 tons in 1916 to 27,822 in 1917, and should considerably increase its production the coming year. In the Nicola Princeton district the Tulameen mine and the Coalmont mine are both being reopened.

Many improvements were started in the mines of British Columbia in 1917. Some 2000 new Edison electric cap lamps were installed. The Burrell gas detector was introduced into the Crow's Nest pass mines for testing for small percentages of methane. A series of tests were made with the detector and samples for analysis taken at the same time, the detector checking very closely with these analyses. In no case was there a difference of more than three-tenths of 1 per cent., and in most cases there was no difference whatever. A good deal of work was done toward the treatment of coal dust. Rock-dust barriers were erected at the entrances of the districts of many of the mines, many of the roadways were treated by second burned ashes and sprinkling systems were installed.

New Zealand

BY PETER A. YAST
Melbourne, Australia

THE full report of the New Zealand state coal mines for the year ended Mar. 31 last is as follows: Two properties are being worked—namely, Point Elizabeth and Liverpool. The Point Elizabeth is now almost exhausted, and prospecting work is being carried on in other localities with a view to opening up a new mine. The probabilities are that an area at Charming Creek, Leedonville, will be selected. A seam of coal over 20 ft. in thickness has been proved and samples show the following average analysis: Fixed carbon, 55.14; volatile hydrocarbons, 41.89; water,



CONCRETE HEADWORKS, MORDEN MINE, PACIFIC COAST COAL MINES, VANCOUVER ISLAND, B. C.

1.61; ash, 1.36. The sulphur content averages 5.04, but this is not greatly in excess of other coals on the market.

The gross output of the mines for the year ended Mar. 31 was 265,792 tons, as compared with 249,839 tons for the previous year. Of this total Point Elizabeth contributed 132,769 tons and Liverpool 133,013. The net tonnage was 252,810 tons. The total sales for the year amounted to 256,558 tons, value \$1,209,251. The average price per ton was \$4.71½, an increase of 64½c. The bulk of the coal is disposed of to the Government railways and for retail distribution through Government depots.

The net profit for the year, after making full provision for interest, depreciation, war bonus and all annual charges, amounted to \$90,012. The bulk of this profit was earned by the Point Elizabeth colliery, and the official report states this "is partly due to the decreased amount charged as depreciation as compared with former years, and to the cessation on development work in view of the approaching exhaustion of the mine."

The property stands at the nominal book value of \$7222, so that it was unnecessary to allow for further depreciation; but it hardly seems right under the circumstances that the expenditure so saved should be classed as profit for the year. In regard to the Liverpool property the profit was only

\$1239.30 as against a loss for the preceding year of \$44,138. In this connection the report states: "While the figures indicate a good recovery, the result is disappointing in view of the tonnage produced and the large capital expenditure (\$843,150) on which interest has to be earned. In order to place this colliery on a sound footing it is imperative that the present f.o.b. rates for coal should be increased to such an extent as to provide a reasonable net profit on the undertaking and to permit a sufficient sum to be set aside annually as a sinking fund for the redemption of the debenture and loan capital. It must not be overlooked that Point Elizabeth colliery is rapidly approaching the exhaustion stage, and when it ceases operations the whole of the interest charge, at present apportioned between the two mines, will have to be borne by Liverpool."

Nova Scotia

BY D. A. ANDERSON
Halifax, N. S.

THE coal trade of this province continues to be hampered by the scarcity of men and shipping, as evidenced by the great falling off in coal shipments to the St. Lawrence River and the United States. The production for the fiscal year ended

Sept. 30 is about 5,804,000 long tons, about 693,000 tons less than in the last previous year.

The price of soft coal has advanced to \$7.75 a ton in Halifax, and a shortage for consumers is at present imminent.

A number of coal seams were opened during the year, notably in Cumberland County, where the Fenwick Coal Co. opened the Blight mine on the Chignecto seam, and the Sterling Coal Co., a mine on areas held by Sherwood & Swanson. The Strathcona Coal Co. and the Fundy Coal Co. (successors to the Atlantic Grindstone and Coal Co.) and the Eastern Coal Co., which have been idle for a few years, are again operating.

In Pictou County the Greenwood Coal Co. appears in the list of producers for the first time. In Inverness County much prospecting has been done about St. Rose and Chimney Corner. The latter mine, which has been idle since 1873, will produce coal this coming year.

An explosion on July 25 in No. 12 mine of the Dominion Coal Co., at New Waterford, by which 65 men were killed and one side of the mine damaged, and the destruction of the Bankhead by fire at No. 1 mine belonging to the same company, tended to decrease materially the production of coal in 1917. Pictou County increased its output over the previous year by about 73,000 tons.

Obituary in 1917

E. L. SHEPLEY, of St. Paul, Minn., vice-president, Northwestern Fuel Co.

JONES G. MOORE, of Birmingham, Ala., general superintendent of coal mines, Sloss-Sheffield Steel and Iron Company.

J. L. WENTZ, of Philadelphia, former active member of J. S. Wentz & Company.

BENJAMIN BRAZNELL, of Pittsburgh, Penn., coal operator.

WILLIAM S. HUGHES, of Scranton, Penn., safety-lamp inventor and manufacturer.

CHARLES M. DODSON, president, Weston Dodson & Co., producers of anthracite and bituminous coal.

GEORGE W. SCHUEDERBERG, of Pittsburgh, Penn., general manager Pittsburgh Coal Company.

THOMAS D. JONES, of Hazelton, Penn., independent anthracite operator.

JOSEPH MILTON CHRISTY, of Moline, Ill., inventor of the box-car loader.

JAMES PEASE, of Chicago, president of the Chicago & Carterville Coal Company.

JAMES F. BEAVERS, of Matewan, W. Va., vice president and general manager, Matewan Coal and Coke Company.

W. H. WAIN, of Calgary, Alta., mining engineer and former manager, Georgetown Collieries.

THOMAS M. WILDEN, of Lansford, Penn., general inside superintendent, Lehigh Coal and Navigation Company.

DENNIS H. SULLIVAN, of Coshocton, Ohio, former president, United Mine Workers in Ohio, former commissioner state board of arbitration and deputy mine inspector.

ANDREW C. BRYDEN, of St. Louis, one-time operator of Murphysboro and Harrison mines, which are now the property of the Big Muddy Coal and Iron Company.

ALEXANDER BRYDEN, of Scranton, Penn., consulting engineer, Pennsylvania Coal Co., the Hillside Coal Co., and New York, Susquehanna & Western Coal Company.

THOMAS RUSSELL, of Michel, B. C., mine manager, Crow's Nest Pass Coal Company.

E. FRANZ ROEBER, of New York, editor *Metallurgical and Chemical Engineering*.

JOHN MCBRIDE, of Columbus, Ohio, one-time president, United Mine Workers of America and one-time president of the American Federation of Labor.

ALEX. RICHARDS, of Esserville, Va., coal operator.

WILLIAM DONALD, superintendent, Stockton collieries, of Lehigh Valley Coal Company.

D. C. ROBERTS, of Marion, Ky., mine operator.

MARSHALL SANGRELET, of Belleville, Ill., superintendent of St. Louis & O'Fallon Coal Company.

JOSEPH V. BIRTLEY, of Scranton, Penn., formerly superintendent of Pancoast mine of Price-Pancoast Coal Company.

FREDERICK F. SAWARD, of New York, editor of *Coal Trade Journal*.

P. J. ROGERS, of Ensley, Ala., president, board of convict inspectors and formerly superintendent, Pratt City division of Tennessee Coal, Iron and Railroad Company.

J. BLAIR KENNERLY, of Johnstown, Penn., mine operator.

JOSEPH B. WOODWARD, of Birmingham, Ala., president, Woodward Iron Company.

WILLIAMS H. DAVIES, of Hazelton, Penn., superintendent in Lehigh region of Lehigh Valley Coal Company.

PAUL B. COSGROVE, of Johnson City, Ill., partner of firm, Cosgrove & Company.

JAMES A. PHILLIPS, of Cleveland, Ohio, one-time manager, Windsor Coal Co. and Steiner Coal Company.

JOHN THOMAS MORGAN, of Birmingham, Ala., president, East Pratt Coal Company.

LAFAYETTE LENZ, of Mauch Chunk, Penn., coal operator and railroad builder.

Anthracite Industry in 1917

By EDWARD W. PARKER

Director, Anthracite Bureau of Information, Philadelphia, Penn.

AS IN many other lines of industrial activity, the year 1917 in the anthracite industry was of such an abnormal character and was affected by so many conflicting conditions that a comprehensive discussion of it in the space permitted in an annual review and statistical number of even so elastic a medium as *Coal Age* is scarcely possible. It is necessary, therefore, to limit this review to the more important features to touch, as it were, the high spots only, and leave the preparation of a more detailed history until later.

It is common knowledge that the production of anthracite in 1917 exceeded any previous record in the history of the industry, for the monthly reports of shipments issued by the Anthracite Bureau of Information have kept the public informed on this subject and never before, probably, has there been so much interest taken by the public in the "statistical situation" of coal, both anthracite and bituminous. There were six months in 1917 when the shipments exceeded those of any month in previous history, and in three of these months the shipments amounted to over 7,000,000 tons, a record hardly deemed possible until it was accomplished. At the end of November the shipments of anthracite had exceeded by nearly a million and a half tons the record made in the twelve months of 1911, the year of previous high water mark in anthracite shipments. The total shipments for the year amounted to 77,133,305 tons, as compared with 67,376,364 tons in 1916, and with 69,954,299 tons in 1911. The increase in 1917 was accordingly 9,756,941 tons, or 14.5 per cent., over 1916, and 7,179,006, or 10 per cent., over 1911. Estimating the colliery consumption at 9,200,000 tons, the local sales at 2,000,000 tons, and the Sullivan County semi-anthracite production at 600,000 tons, it is found that the total output amounted to approximately 89,000,000 tons, an increase of more than 10,700,000 tons over 1916 when, as reported by the United States Geological Survey, the production was 78,195,083 tons. The production in 1917 was within less than 1.2 per cent. of the maximum (90,000,000 tons) output, estimated as obtainable in any one year from the anthracite mines. The shipments by months as reported to the Anthracite Bureau of Information is shown in the following table:

Month	Tons	Month	Tons
January.....	5,940,725	July.....	6,724,252
February.....	5,178,432	August.....	7,013,996
March.....	6,989,075	September.....	6,372,756
April.....	5,592,299	October.....	7,110,950
May.....	6,917,525	November.....	6,545,313
June.....	7,049,037	December.....	5,698,945

The total shipments for the last ten years have been as follows:

Year	Tons	Year	Tons
1908.....	64,665,014	1913.....	69,069,628
1909.....	61,696,885	1914.....	68,342,601
1910.....	64,905,786	1915.....	67,883,776
1911.....	69,954,299	1916.....	67,376,364
1912.....	63,610,578	1917.....	77,133,305

The record production of anthracite in 1917 was made in spite of a dwindling labor supply which, other conditions being equal, would have resulted in a decreased instead of an increased output. High wages and favor-

able conditions of employment offered by munition and other manufacturing establishments and by the Government in the construction of cantonments, shipyards, etc., caused many, particularly of the younger men, to desert the mines, and this migration combined with the voluntary and compulsory enlistments in the army and navy reduced the labor force in the anthracite region. At the close of the year the number of employees in the anthracite mines was absolutely at the irreducible minimum if the rate of production secured in 1917 is to be maintained.

There is, of course, some graduation from the mines every year, but heretofore this has been offset by new recruits drawn from the surplus labor market in Europe. In 1917 there was no inflow of foreign labor, and all the labor movement at the mines was outward. To have obtained the tonnage won in 1917 with the seriously depleted labor supply is almost to have achieved the unachievable, and the coal-consuming public owes a debt of gratitude to the operators and to the loyal anthracite mine-workers who have bent every effort during the trying months of 1917 to meet the needs of the country in fuel supply. The results were accomplished, and could only have been accomplished, by keeping the mines and breakers at work every possible working day, the mine workers denying themselves many customary holidays, and by having a practically adequate supply of railroad cars which prevented any serious broken time on that account.

"COMMUNITY OF INTERESTS" FAVORS ANTHRACITE

The "community of interests" between the anthracite carriers and the mining operators gave that branch of the coal-mining industry, so far as transportation is concerned, a decided advantage over the bituminous operators, many of which it was stated by officials of the mining companies, had not been able to work more than two or three days a week because of lack of cars, when the demand was such that, provided with ample car supply, they could have worked six days a week. In the anthracite region "the stone (that community of interest) rejected by the (political) builders became the corner stone of the temple."

Early in the spring, the anthracite operators, realizing the seriousness of the lure of higher wages offered by other lines of employment, met the representatives of their employees and, on Apr. 26, after a comparatively brief conference, reached an agreement, supplemental to the agreement of May 5, 1916, by which wages were advanced from 10 to 20 per cent. in different classes of labor, the aggregate effect of which was to increase the cost of production by an average of about 30c. a ton, which was, with the approval of the Federal Trade Commission, added to the price at the mines. The commission, after a thorough investigation of the anthracite industry, had found that the prices obtaining were not extortionate nor were profits, on the average, unreasonable, and on Aug. 23, when the President by proclamation fixed the prices for prepared sizes of an-

thracite, he practically adopted those then prevailing for the larger companies and allowed the "individuals" a differential of 75c. a ton. The prices fixed by the President's order were as follows:

	White Ash Company Individual		Red Ash Company Individual		Lykens Valley Company Individual	
Broken.....	\$4.55	\$5.30	\$4.75	\$5.50	\$5.00	\$5.75
Egg.....	4.45	5.20	4.65	5.40	4.90	5.65
Stove.....	4.70	5.45	4.90	5.65	5.30	6.05
Nut.....	4.80	5.55	4.90	5.65	5.30	6.05

The price of pea coal was fixed at \$4 per ton for white ash with equivalent differentials for red ash and Lykens Valley and "individuals," and this was probably very near the average price obtaining in the region; but by a later order (Oct. 1) of the Fuel Administrator, who had in the meantime been appointed, the price of white ash pea coal was reduced to \$3.40, the differentials for red ash, Lykens Valley and the "individual" operators being maintained.

In the fall of the year, as conditions became aggravated, further concessions to labor were found necessary in order to provide for the increased costs of the commodities they bought and to prevent further desertions from the mines, and a conference was held at Washington, the result of which was a further supplemental agreement by which wages were advanced to an extent that increased the average cost of production about 45c. a ton, this agreement being predicated upon the approval of the Fuel Administrator to an equivalent advance in the selling price. The proposition was submitted to the Fuel Administrator immediately upon the signing of the agreement, Nov. 17, and on Nov. 28 he submitted his recommendation to the President. As this incident is somewhat of a history-making character, the letter of Doctor Garfield to the President, the President's order, and the acknowledgment thereof by the committee representing the anthracite operators is given in full.

The following is Doctor Garfield's letter to the President on which the order was based:

Dear Mr. President:

The labor problem in the anthracite mines is not different in any material respect from that in the bituminous fields. Most of the comment in my letter of Oct. 26 is applicable to the anthracite situation. It is therefore unnecessary to repeat it here.

On Nov. 17, after a conference of about two weeks, the anthracite operators and miners reached an agreement, a copy of which I inclose.

In response to my request, the operators' association furnished statements showing in detail the tonnage and actual labor costs since the last wage increase, May, 1917, and the additional cost per ton if the increase of Nov. 17 is added. These figures were based upon an examination of over 68,000,000 tons, or 85 per cent. of the total tonnage estimated for 1917. If the proposed wage increase becomes effective, the increased cost placed upon the operators will range from 26c. per ton to 56c. per ton. A small high-cost tonnage shows additional costs per ton as high as 70c. The weighted average of the above-mentioned tonnage, accurately figured, is 37.2c. per ton. The increased cost to operators producing about 41,000,000 tons, or substantially one-half of this year's tonnage, will be 35c. and upward per ton.

I, therefore, respectfully recommend that the prices fixed by your proclamation of Aug. 23, 1917, as modified with respect to the price of pea coal by my order of Oct. 1, 1917, be uniformly increased in the sum of 35c. per ton, provided, however, that these increases shall not apply to any coal sold at the mine under existing contract containing a provision for an increase for the price of coal thereunder, in case of an increase in wages to miners.

In this connection, I desire to say that it is my expectation to order the reduction in anthracite prices which has been regularly given beginning Apr. 1, 1918.

I desire also to call attention to the fact that the Board of Conciliation created by the Commission appointed by President Roosevelt in 1902, has performed its tasks so acceptably to all concerned that there is no occasion for the introduction of an automatic penalty clause as provided in the case of the bituminous field, nor was the inclusion of any such clause provided for in the agreement of Nov. 17 between the operators and the mine workers.

Respectfully submitted,

H. A. GARFIELD,

United States Fuel Administrator.

PRESIDENT WOODROW WILSON,
The White House,
Washington, D. C.

THE PRESIDENT'S ORDER

Dec. 1, 1917.

Acting on a recommendation from Dr. Harry A. Garfield, Fuel Administrator, the President has issued the following executive order:

THE WHITE HOUSE,
Washington, D. C.,
Nov. 28, 1917.

The scale of prices prescribed Aug. 23, 1917, by the President of the United States for anthracite coal at the mines, adjusted as to pea coal Oct. 1, 1917, by order of the United States Fuel Administrator, is hereby amended by adding the sum of thirty-five (35) cents to each of the prices so prescribed or adjusted, provided, however, that this increase in prices shall not apply to any coal sold at the mines under an existing contract containing a provision for an increase in the price of coal thereunder, in case of an increase of wages paid to miners.

This order shall become effective at 7 a.m. on Dec. 1, 1917.
WOODROW WILSON.

ACKNOWLEDGEMENT BY OPERATORS' COMMITTEE

New York, Dec. 3, 1917

HON. H. A. GARFIELD,
United States Fuel Administrator,
Washington, D. C.

Sir:

Although our committee has received no formal notice from you respecting the advances in prices of anthracite authorized by the President upon your recommendation to offset the proposed increases to labor, we have observed the press announcement which we assume to be accurate. In the present crisis we have felt it incumbent upon us to act promptly and have today held a meeting of as many as possible of the operators affected by this price order.

The great difficulty we have encountered, you can well appreciate, arises from the fact so well stated in your letter to the President that "the increased cost to operators producing about 41,000,000 tons, or substantially one-half of this year's tonnage, will be 35c. and upward per ton"; or, in other words, that the permitted increase compels these producers to assume from their own pockets without possibility of recoupment, the excess allowed to labor above 35c. per ton.

This posture of affairs, so clearly and frankly indicated in your letter, left us only one ground of appeal to those producers whose demonstrated increased costs exceed the allowance—namely, an appeal to their loyal spirit of co-operation in the public interest even in the face of a substantial financial loss to themselves.

We are pleased to say that that appeal has been successful, and we are in a position to advise you that those operators have undertaken to sell at the prices named in the President's published order notwithstanding the fact that they dissent from your conclusion as being without justification on the record submitted to you.

Mindful of the period of uncertainty which followed the bituminous settlement, and believing that our employees and the consumers of our product are entitled to prompt information of this settlement, we are giving this letter to

the press simultaneously with its dispatch to you in the confidence that you will approve our course in this respect.

Respectfully,

(Signed) S. D. WARRINER,
W. J. RICHARDS,
J. B. DICKSON,

Committee.

No changes were made in the differentials for red ash or Lykens Valley coal, nor to the individual operators, and the prices for prepared sizes, including pea for the last month of the year, were as follows:

	White Ash Individual Company		Red Ash Individual Company		Lykens Valley Individual Company	
Broken.....	\$4 90	\$5 65	\$5 10	\$5 85	\$5 35	\$6 10
Egg	4 80	5 55	5 00	5 75	5 25	6 00
Stove	5 05	5 80	5 25	6 00	5 65	6 40
Nut	5 15	5 90	5 25	6 00	5 65	6 40
Pea	3 75	4 50	3 85	4 60	4 10	4 85

The prime factor in producing the abnormal conditions that affected the anthracite industry, as well as all other industries in 1917, was, of course, the entrance of the United States into what is now the world war, but this factor, however powerful as it was, was indirect in its influence on the demand for and production and distribution of anthracite. Anthracite is now relatively unimportant as a manufacturing fuel. Including the steam sizes that are used for the heating of office buildings, hotels and apartment houses as domestic coal (and where so used they really are domestic fuel) and considering all the lump and broken coal, most of which is used in the manufacture of water gas, as industrial fuel, probably 70 per cent. of the output may be considered as used for domestic purposes.

Naturally, therefore, anthracite would not be so immediately and directly influenced by the sudden expansion of our manufacturing industries, due to the war's demands, as would bituminous coal. But the bituminous mines, the coke ovens and the railroads were not prepared for, and could not respond to, the unexpected demands upon them, and these conditions have created an industrial demand for anthracite, particularly from brass foundries and similar industries, that could not secure needed supplies of coke. It is not believed, however, that the quantity of anthracite which was used to make up the deficiencies of bituminous coal and coke for industrial fuel has been equal to or even approximated the increased production of 10,000,000 tons over the output of 1916.

Other causes contributed more significantly to the shortage that prevailed in anthracite-consuming communities throughout the year. In the first place it must be remembered that at the close of the winter of 1916-17 the storage yards of the larger companies were practically bare, whereas at the corresponding period in 1916 there were from 4,000,000 to 5,000,000 tons of coal on hand. The "coal year" of 1916 opened with a good surplus in stock; that of 1917 opened with storage yards empty, and the same conditions obtained in the bins of the consumers. The winter of 1916-17 was unusually severe, and was followed by a "late" spring, coal-burning weather continuing in the principal anthracite-consuming territories until well into June. In the Upper Lake region, which is an important anthracite market, there is ordinarily carried forward some 400,000 to 500,000 tons from one year to the other; in the spring of 1917 the docks at the head of the Lakes were bare, and navigation was not opened until a month later than usual. The year, here, then began with a

shortage and with a shortened season of navigation in which to make it up. The failure of the supply of natural gas in Ohio created a demand for anthracite from the residents of the affected districts, while of no small importance along the same lines has been the suddenly expanded populations of such manufacturing cities as Detroit, Mich.; Bridgeport, Conn.; Bethlehem and Chester, Penn., and the capital city of Washington. In practically all of these cases the increased demands for anthracite has been for household use. The chief augmentation in demand except for domestic purposes has been from gas companies which, unable to secure their customary supplies of coke for use in the manufacture of water gas, have called upon the anthracite mines to make up the deficiency.

Complaints have been made that undue quantities of anthracite have been taken by the Government to provide for the officers and men at the army posts and cantonments. The total quantity of anthracite requisitioned by the Government up to Dec. 31, including orders from the Navy Department for delivery during the entire fiscal year, had not amounted to 500,000 tons, and there has not been a time since the anthracite operators volunteered to see that the Government needs should be promptly filled that any of the camps have had more than ten days' supply on hand. No injustice has been done to the public by this action of the anthracite operators.

Enough has been said here to show how and why the 10,000,000 tons of increased production has been absorbed. If the mild weather of November had proved a forerunner of similar temperatures for the remainder of the year, little inconvenience on account of coal supply would have been experienced. Unfortunately the last two weeks of the year were made notable by blizzards and by almost unprecedented low temperatures for that season. There was, as a result, much suffering from lack of fuel in some quarters and from apprehension of not being able to obtain supplies in other quarters. There was, however, an abundant supply of coal in transit or tied up at junction points or on sidings to have met the emergency if it could have been moved to destinations and distributed. On Dec. 27 the Government took control of the railroad, and it is now hoped and believed that a freer movement of coal cars will be maintained; it is also hoped that by coöperation of dealers with local administrators an equitable distribution to consumers will be effected and panicky conditions brought to an end.

In a review of the anthracite industry in 1917 one action on the part of those in control of the greater part of the production should not be overlooked. And that was the holding down of prices at a time when, if the general tendency had been followed, consumers might well have had cause for complaint. As it was, however, anthracite price circulars were not only not advanced more than the cost of production had increased, but the usual spring discounts were put into effect when there would have been no difficulty in obtaining full circular prices. The United States Bureau of Labor Statistics in its monthly review for October, 1917, presents a table in which it is shown that out of a total of 50 necessary commodities only one shows a lower percentage of advanced price than anthracite, and that exception is one for which the demand is on the decline.

Coal-Mine Accidents in 1917

By ALBERT H. FAY

Mining Engineer, U. S. Bureau of Mines

Prepared and published in "Coal Age" through the courtesy of the Director of the Bureau

THE abnormal conditions under which the coal mines were operated during 1917 are reflected in the accident records to the extent of an increase of about 20 per cent. in fatalities over 1916. There has been and is still an unusual demand on the operators for an increase in coal production, which has been hampered by a congestion in freight traffic and a shortage of labor.

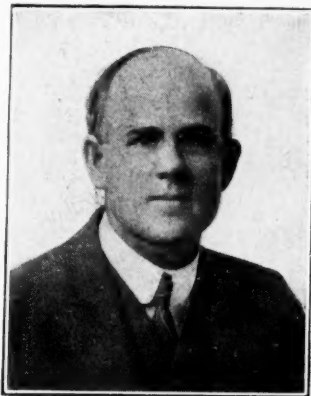
Complete data are not available to show definitely whether or not the increase in production will equal the percentage of increase in accidents, nor is it possible to give the number of men employed in 1917. Preliminary reports to the United States Geological Survey indicate that in some states there is a slight increase in the number of men employed, but for the United States as a unit, it is doubtful whether the total number employed will equal the number employed in 1916, which was 734,008. Those mines which were able to secure cars to market their coal were operated on a full-time basis, which adds to the number of days the individual miner could work, thus lengthening the time he was exposed to the mining hazard. The risk encountered by the individual is proportional to the time exposed. Other mines which were not so favorably situated as to dispose of their coal operated only part time. This condition results in an increase of certain dangers, especially those due to gas and falls of roof, which would not obtain in the case of the mine operating full time.

CAUSE OF LABOR SHORTAGE

The shortage of labor at the mines is due to the attractive wages in munition factories, enlistments and drafts into the army, a relaxation in immigration and to emigration of many miners early in the war. It has been necessary, therefore, to employ new and inexperienced men from other fields to replenish this shortage.

Many of the experienced mine foremen and safety engineers have either enlisted or been drafted into the army, or secured more remunerative employment elsewhere, with the result that less experienced foremen have been placed in charge of some of the workings. With the exceedingly large demand for coal it has not been possible for the operators and others concerned to give as much attention to accident prevention at the mines as was being done in previous years under normal conditions.

The reports of the coal-mine inspectors to the Bureau of Mines to the close of October show 2104 fatalities at the coal mines of the United States, as compared with 1748 for a like period in 1916, representing an increase of 20 per cent. There were four explosions in November and December which killed 65 as compared with two in 1916 which resulted in the death of 50 men. The returns so far received for the last two months of the year indicate that the percentage of increase will hold



ALBERT H. FAY

for the entire year. The total number of fatalities in 1916 was 2226, to which must be added 20 per cent. for 1917. During 1916 there were 11 mine disasters in each of which five or more men were killed, while in 1917 there were eight such disasters. The 11 disasters in 1916 killed 154 men, while the eight in 1917 killed 256. Table I gives a list of the above disasters.

Table II shows the actual number of fatalities reported to the bureau in 1917 during the first 10 months of the year, together with the fatalities for the corresponding period in 1916. Falls of

roof show an increase of 116, or 13.7 per cent., while mine cars and locomotives underground show an increase of 19.75 per cent. Haulage on the surface, which

TABLE I. COAL-MINE DISASTERS IN THE UNITED STATES IN 1916 AND 1917 IN WHICH FIVE OR MORE MEN WERE KILLED

Date	Name of Mine	Location of Mine	Nature of Accident	Killed
1916 Feb. 8	Lance	Plymouth, Penn.	Mine explosion	7
1916 Feb. 11	Jefferson and Clearfield No. 2	Ernest, Penn.	Mine explosion	27
1916 Feb. 29	Davis No. 42	Kempton, W. Va.	Mine explosion	16
1916 Mar. 9	Hollenback	Wilkes-Barre, Penn.	Mine explosion	6
1916 Mar. 28	King	Kimball, W. Va.	Mine explosion	6
1916 Mar. 30	Robindale	Seward, Penn.	Mine explosion	8
1916 Aug. 8	Woodward	Wilkes-Barre, Penn.	Mine explosion	6
1916 Oct. 19	Jamison No. 7	Barrackville, W. Va.	Mine explosion	10
1916 Oct. 22	Roden	Marvel, Ala.	Mine explosion	18
1916 Nov. 4	Bessie	Palos, Ala.	Mine explosion	30
1916 Dec. 13	Fidelity No. 9	Stone City, Kans.	Mine explosion	20
1917 Mar. 13	Henderson No. 1	Hendersonville, Penn.	Mine explosion	14
1917 Apr. 18	Lynden	Mason, W. Va.	Lightning exploded powder in powder house	5
1917 Apr. 27	Hastings	Hastings, Colo.	Mine explosion	121
1917 June 2	Rend No. 2	Herrin, Ill.	Mine explosion	9
1917 Aug. 4	West Kentucky, No. 7	Clay, Ky.	Mine explosion	62
1917 Nov. 29	Old Ben, No. 11	Christopher, Ill.	Mine explosion	17
1917 Dec. 15	Yukon, No. 1	Bluefield, W. Va.	Mine explosion	17
1917 Dec. 20	Nemo	Harriman, Tenn.	Mine explosion	11

includes both mine cars and railway cars and locomotives, shows an increase of 68.63 per cent., while the total increase for the entire coal-mining industry is 20.37 per cent. The foregoing figures indicate clearly that eternal vigilance is the price which must be paid if accidents are to be kept at a minimum. The least

TABLE II. FATALITIES AT COAL MINES FROM JANUARY TO OCTOBER, INCLUSIVE, 1916 AND 1917

	Number Killed 1916	Number Killed 1917	Increase or Decrease	Percentage of Increase or Decrease
Underground:				
Falls of roof or face	846	962	+116	13.71
Mine cars and locomotives	314	376	+62	19.75
Gas and dust explosions	160	287	+127	79.37
Explosives	119	85	-34	28.57
Electricity	71	62	-9	12.68
Miscellaneous underground	86	94	+8	9.30
Total underground	1,596	1,866	+270	16.92
Shaft:				
Total shaft	39	44	+5	12.82
Surface:				
Haulage	51	86	+35	68.63
Machinery	17	41	+24	141.18
Miscellaneous surface	45	67	+22	48.89
Total surface	113	194	+81	71.68
Grand total	1,748	2,104	+356	20.37

relaxation of safety measures, inspection and supervision; the disorganization of the industry, or an unusual demand for coal, immediately result in higher accident records as shown by the experience of 1917.

Bituminous Coal in 1917

By C. E. LESHER

United States Geological Survey, Washington, D. C.

THE production of bituminous coal in the United States in 1917 is estimated at 544,000,000 net tons, an increase of 41,000,000 tons, or 8.3 per cent. over 1916, thus establishing a new high record. Early in the year the mark was set at 600,000,000 tons, and for the first three months after the United States entered the war the increases in the rate of output were such as to warrant the belief that that mark might be attained. Beginning in July, however, a number of factors were introduced that adversely affected production, and by the middle of October it was apparent that the most that could be expected would be 550,000,000 tons, which record would have been reached had it not been for the extremely severe weather in December, affecting not only transportation but to some extent surface operation at the mines. The estimated output in December was the lowest in any month of 1917, except April.

A quantitative measure of the increase in demand for bituminous coal is, of course, difficult to obtain. The largest consumers of coal are the railroads, and their increase in consumption was between 15,000,000 and 20,000,000 tons over 1916, of which from 2,000,000 to 3,000,000 tons was taken up from storage on hand at the beginning of 1917. The increased demands for coal by the railroads may be considered to have been supplied.

Coal used in making coke increased 3,100,000 tons, the estimated output of coke in 1917 being 56,600,000 tons, of which 22,600,000 tons, or 40 per cent., was



C. E. LESHER

byproduct, and 34,000,000 tons, or 60 per cent., was beehive. This increase in production does not, however, measure the increase in demand, for throughout the year the output of Connellsville coke was below that for 1916, and the byproduct output was at times seriously curtailed through lack of coal.

The largest increase in demand and in consumption was in general industry. Comparable figures collected and compiled for the United States Fuel Administration show that the increase in consumption in 1917 over 1916 by manufacturing and industrial plants consuming about

60 per cent. of the bituminous coal in that part of the country east of Illinois and north of Maryland (exclusive of New England) was between 14 and 15 per cent.

The percentage increase shown by these figures, by states, are as follows:

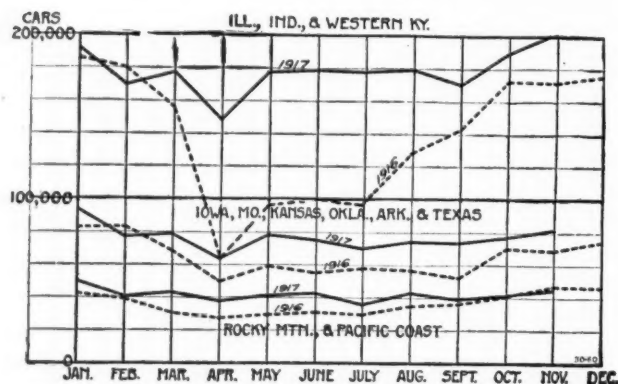
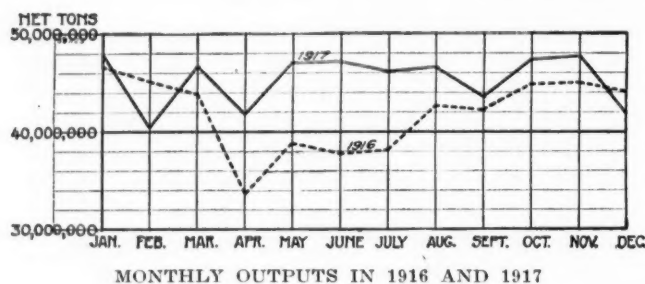
State	Percentage	State	Percentage
New York	4.9	Maryland	21.4
Pennsylvania	21.6	Ohio	15.4
New Jersey	16.8	Michigan	6.9
Delaware	31.4	Indiana	9.1

Weighted average increase, 14.6 per cent.

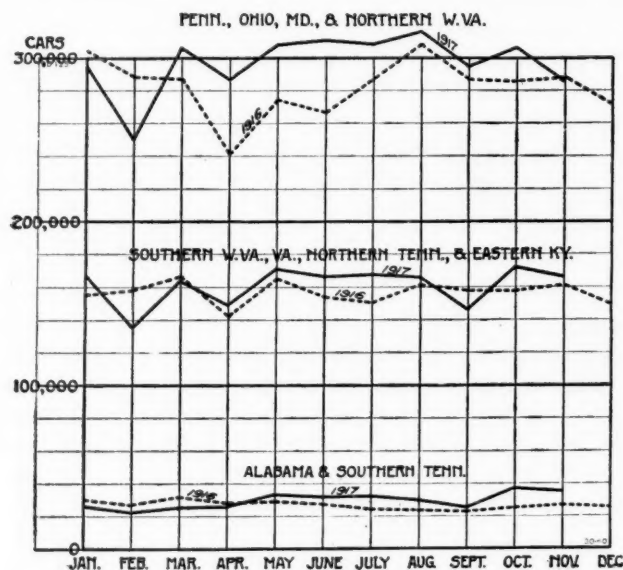
These figures are of course subject to modification as more complete returns become available.

It is significant that the territory reporting the largest increase in consumption—namely, the Atlantic seaboard from Baltimore to New York—is the region in which the shortage of coal, during the past few months, has been the most acute, and that the coal fields on which this territory depends mainly for its supply; that is, those in central Pennsylvania, Maryland and West Virginia, did not show a gain in proportion to that of the country as a whole.

In explanation of this it is to be noted that the



COMPARATIVE PRODUCTION IN DIFFERENT COAL-PRODUCING DISTRICTS BY MONTHS



coal for consumption in the region supplied by Pennsylvania, Maryland and West Virginia was about 4,000,000 tons in excess of the gain in production in those fields because coal for the Northwest via the Lakes, and coal for foreign export and foreign bunker from the producing districts of Pennsylvania, Maryland and West Virginia was less by that amount in 1917, compared with 1916.

The most notable gain, and the greatest in total tonnage, was in Illinois and Indiana. In Alabama production beginning in May was greater than in the corresponding months of 1916; in all the coal-producing states west of the Mississippi production in 1917 was at a higher rate than in 1916, and Michigan recorded an increase.

The World's Coal Production

Much interest attaches to a comparison of figures on world coal production compiled in the normal period just preceding the war by the Research Division of the Bureau of Foreign and Domestic Commerce.

These figures show that Belgium, small as it is in territory, had the second largest per capita coal consumption. This evidences the wonderful industrial activity of Belgium, especially as a great deal of its industrial work involves hand labor.

The United States has been producing practically twice as much coal as the next largest producer, the United Kingdom, and more coal than the United Kingdom, Germany and France combined. England and Germany were important exporters of coal before the war period, supplying much coal to the West Indies and South America who now obtain it from the United States.

Canada has imported heretofore more coal than it has produced. Austria-Hungary has also been a heavy importer of coal as well as Italy, Sweden and Spain. Japan has been a fairly heavy exporter, and Belgium in its earlier days both imported and exported in considerable quantity. The production and per capita coal consumption of the nations of the world is as follows:

Countries	Annual Production Tons	Consumption Per Capita Tons
Australia	11,730,000	1.17
Austria-Hungary:		
Austria	15,544,000	
Hungary	1,269,000	0.52
Belgium	22,603,000	3.35
British India	14,706,000	0.50
British South Africa:		
Cape of Good Hope	67,000	
Natal	2,469,000	
Orange Free State	469,000	0.95
Transvaal	4,243,000	
Canada	12,958,000	3.32
France	39,745,000	1.48
Germany	172,065,000	2.12
Italy		0.28
Japan	17,349,000	0.24
New Zealand	2,178,000	2.23
Russian Empire	25,998,000	0.19
Spain	3,605,000	0.31
Sweden	355,000	0.96
United Kingdom	260,416,000	3.83
United States		

The Bureau of Foreign and Domestic Commerce also notes that the definitely known coal deposits of the world total 716,154 million (metric) tons, and the probable and possible coal deposits are 6,682,139 million (metric) tons.

The total of the definitely known deposits, the probable, and the possible deposits, is therefore 7,397,533

million (metric) tons. Of this total, Australia has 170.41 billion, Asia 1,279.58 billion, Africa 57.85 billion, America 5,105.53 billion and Europe 784.19 billion metric tons. Thus, America has about seven tenths, Asia not quite two tenths, and Europe about one tenth of the world's coal supply.

The following figures represent coal deposits of Europe in millions of metric tons:

Country		Country	
Germany	423,356	Bulgaria	388
Great Britain	189,530	Italy	243
Russia	60,106	Sweden	114
Austria-Hungary	59,169	Denmark	50
France	17,583	Greece	40
Belgium	11,000	Roumania	39
Spain	8,708	Portugal	20
Holland	4,402	Spitzbergen	8,750
Serbia	529		
		Total	784,190

The principal coal deposits of North America are held by the United States with 3,838,657 and Canada with 1,234,209 millions of (metric) tons. It is calculated that the entire coal supply of the world will be exhausted in 2000 years.

Workmen's Compensation Awards Are Higher Than in 1916

Accident reports indicating the injury of 232,425 workers in Pennsylvania were received during the year 1917 by the Department of Labor and Industry, according to an announcement made by Acting Commissioner Lew R. Palmer. Of the total number of injured workers, 3152 died from their injuries, an average of approximately one death for every 74 industrial casualties reported.

From the accident records compiled in the Bureau of Statistics and Information, and Bureau of Workmen's Compensation of the Department of Labor and Industry, up to Jan. 1, the total amount of workmen's compensation awarded and paid for industrial fatalities and disability cases in 1917 amounts to \$7,161,094. The same total in 1916 was \$4,224,875.

The total amount of compensation paid in nonfatal cases during 1917 was \$2,480,581, while \$645,281 was paid in fatal cases. Compensation awarded in fatal cases during 1917, and payable during a term of years, was \$4,680,513, an average of \$2272 compensation cost for each industrial accident.

Compensation costs for permanent disability of workers during 1917, according to agreements filed in accordance with the compensation law, are as follows: Loss of hand, 182 cases, total cost, \$259,943; loss of arm, 52 cases, total cost, \$84,866; loss of foot, 71 cases, total cost, \$108,616; loss of leg, 49 cases, total cost, \$81,753; loss of eye, 447 cases, total cost, \$475,954.

The total number of workmen's compensation agreements approved during 1917 was 75,076. The same total in 1916 was 54,500. Of the 1917 agreements, 73,016 covered nonfatal cases, while 2060 were for fatal cases. Claim petitions for compensation filed in 2964 cases during 1917 were referred to referees and disposed of as follows: Awards, 799; disallowed, 650; dismissed, 993; withdrawn, 228; pending, 294. During the year 1916 there were 1730 claim petitions filed. Other petitions filed during 1917 include 612 for termination; 337 for modification and a total of 112 for reopening of cases.

Bituminous Coal in 1917

By C. E. LESHER

United States Geological Survey, Washington, D. C.

THE production of bituminous coal in the United States in 1917 is estimated at 544,000,000 net tons, an increase of 41,000,000 tons, or 8.3 per cent. over 1916, thus establishing a new high record. Early in the year the mark was set at 600,000,000 tons, and for the first three months after the United States entered the war the increases in the rate of output were such as to warrant the belief that that mark might be attained. Beginning in July, however, a number of factors were introduced that adversely affected production, and by the middle of October it was apparent that the most that could be expected would be 550,000,000 tons, which record would have been reached had it not been for the extremely severe weather in December, affecting not only transportation but to some extent surface operation at the mines. The estimated output in December was the lowest in any month of 1917, except April.

A quantitative measure of the increase in demand for bituminous coal is, of course, difficult to obtain. The largest consumers of coal are the railroads, and their increase in consumption was between 15,000,000 and 20,000,000 tons over 1916, of which from 2,000,000 to 3,000,000 tons was taken up from storage on hand at the beginning of 1917. The increased demands for coal by the railroads may be considered to have been supplied.

Coal used in making coke increased 3,100,000 tons, the estimated output of coke in 1917 being 56,600,000 tons, of which 22,600,000 tons, or 40 per cent., was



C. E. LESHER

byproduct, and 34,000,000 tons, or 60 per cent., was beehive. This increase in production does not, however, measure the increase in demand, for throughout the year the output of Connellsville coke was below that for 1916, and the byproduct output was at times seriously curtailed through lack of coal.

The largest increase in demand and in consumption was in general industry. Comparable figures collected and compiled for the United States Fuel Administration show that the increase in consumption in 1917 over 1916 by manufacturing and industrial plants consuming about

60 per cent. of the bituminous coal in that part of the country east of Illinois and north of Maryland (exclusive of New England) was between 14 and 15 per cent.

The percentage increase shown by these figures, by states, are as follows:

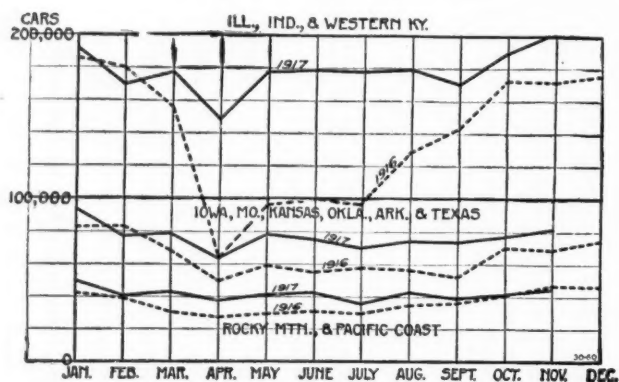
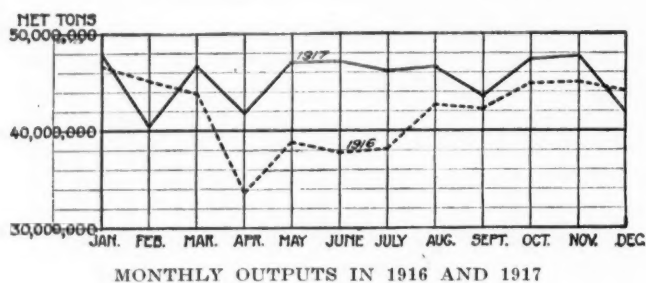
State	Percentage	State	Percentage
New York	4.9	Maryland	21.4
Pennsylvania	21.6	Ohio	15.4
New Jersey	16.8	Michigan	6.9
Delaware	31.4	Indiana	9.1

Weighted average increase, 14.6 per cent.

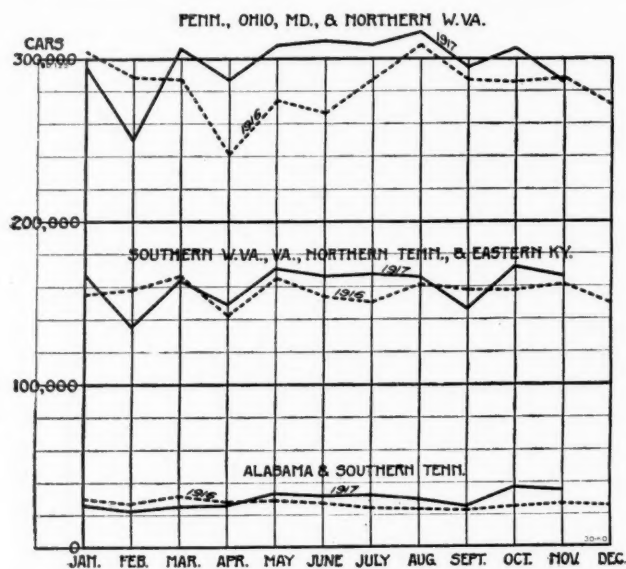
These figures are of course subject to modification as more complete returns become available.

It is significant that the territory reporting the largest increase in consumption—namely, the Atlantic seaboard from Baltimore to New York—is the region in which the shortage of coal, during the past few months, has been the most acute, and that the coal fields on which this territory depends mainly for its supply; that is, those in central Pennsylvania, Maryland and West Virginia, did not show a gain in proportion to that of the country as a whole.

In explanation of this it is to be noted that the



COMPARATIVE PRODUCTION IN DIFFERENT COAL-PRODUCING DISTRICTS BY MONTHS



coal for consumption in the region supplied by Pennsylvania, Maryland and West Virginia was about 4,000,000 tons in excess of the gain in production in those fields because coal for the Northwest via the Lakes, and coal for foreign export and foreign bunker from the producing districts of Pennsylvania, Maryland and West Virginia was less by that amount in 1917, compared with 1916.

The most notable gain, and the greatest in total tonnage, was in Illinois and Indiana. In Alabama production beginning in May was greater than in the corresponding months of 1916; in all the coal-producing states west of the Mississippi production in 1917 was at a higher rate than in 1916, and Michigan recorded an increase.

The World's Coal Production

Much interest attaches to a comparison of figures on world coal production compiled in the normal period just preceding the war by the Research Division of the Bureau of Foreign and Domestic Commerce.

These figures show that Belgium, small as it is in territory, had the second largest per capita coal consumption. This evidences the wonderful industrial activity of Belgium, especially as a great deal of its industrial work involves hand labor.

The United States has been producing practically twice as much coal as the next largest producer, the United Kingdom, and more coal than the United Kingdom, Germany and France combined. England and Germany were important exporters of coal before the war period, supplying much coal to the West Indies and South America who now obtain it from the United States.

Canada has imported heretofore more coal than it has produced. Austria-Hungary has also been a heavy importer of coal as well as Italy, Sweden and Spain. Japan has been a fairly heavy exporter, and Belgium in its earlier days both imported and exported in considerable quantity. The production and per capita coal consumption of the nations of the world is as follows:

Countries	Annual Production Tons	Consumption Per Capita Tons
Australia	11,730,000	1.17
Austria-Hungary:		
Austria	15,544,000	
Hungary	1,269,000	0.52
Belgium	22,603,000	3.35
British India	14,706,000	0.50
British South Africa:		
Cape of Good Hope	67,000	
Natal	2,469,000	
Orange Free State	469,000	0.95
Transvaal	4,243,000	
Canada	12,958,000	3.32
France	39,745,000	1.48
Germany	172,065,000	2.12
Italy		0.28
Japan	17,349,000	0.24
New Zealand	2,178,000	2.23
Russian Empire	25,998,000	0.19
Spain	3,605,000	0.31
Sweden	355,000	0.96
United Kingdom	260,416,000	3.83
United States		

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The National Coal Association

By J. D. A. MORROW

General Secretary, National Coal Association, Washington, D. C.

A CONCRETE realization of a long deferred hope is the National Coal Association. For years coal men felt that a national organization would be distinctly beneficial, but it was not until the industry came under Government control that such an association was formed. The National Coal Association began its work about Oct. 1, 1917. Its membership is composed primarily of local associations of operators such as the Indiana Coal Trade Bureau, the Pittsburgh Coal Producers' Association, the Central West Virginia Coal Operators' Association, and other similar organizations throughout the producing fields. In addition it has individual members in fields where there are no local associations or where it is not practicable for some good reason for a company to hold membership in a local association. It is the desire of the association to include every coal operator in the United States, and the door to membership is always open. When first organized its members had a total annual production of approximately 120,000,000 tons; at the present time, the annual output of its members is 300,000,000 tons, and this total is increasing every day.

The affairs of the association are managed by a board of sixteen directors, intended broadly to represent the larger producing districts. Its purposes are two-fold: First, to give the United States Fuel Administration and other agencies of the Government the fullest coöperation and assistance in the present national emergency; and second, to carry on constructive work of definite and substantial benefit to the industry.

With peace it is now expected that the industry will return to private control, as before the war, but it is hoped that a better understanding will have been established between the coal producers and the authorities in Washington which will be lasting, and it is certain that in the readjustment of industrial activity in the United States after the war the National Coal Association may be of great value to every producer of coal.

INFORMATION SERVICE TO MEMBERS

One of the most important features of the association's work is its information service. This service endeavors to inform the members accurately as to developments in Washington which affect their interests. They are informed of Fuel Administration rulings and announcements, reports of the Federal Trade Commission, the Internal Revenue Bureau, the Interstate Commerce Commission, and of other governmental agencies which affect the industry, through the *Daily Digest*, which publication is mailed to each member every day.

The information service also undertakes to answer specific inquiries of members for information. Another branch of its work is the dissemination of facts of general educational value to the public. The association collects from its member associations telegraphic advice daily as to the car supply and car shortage, and conditions of railroad transportation in their respective districts. This information is assembled daily into a report which is utilized by the Fuel Administration, the Director General of Railroads, the Interstate Com-

merce Commission, and other Governmental bodies, in the effort to obtain improvement. This material is also utilized in press announcements and statements emphasizing the causes of the coal shortage, giving an accurate portrayal of the conditions in the coal-producing districts and impressing upon the public the all-important fact that the failure to obtain coal is not due to any fault or incapacity of the mine operators, but has been directly and solely due to the failure to furnish sufficient transportation to the mines.

This is typical of the educational work which the information service is carrying on. It is undertaking to make the public understand the difficulties and costliness of coal production under present conditions so that the consumer will have a better understanding of the fact that mine prices for coal must be, of necessity, higher than heretofore, and that after all the price paid to the mine operator is but a small proportion of the final cost to him.

ASSOCIATION HAS TRAFFIC DEPARTMENT

It is the conviction of every enlightened coal operator today that the unfortunate public sentiment toward coal operators is due largely to a misunderstanding of the conditions under which they are now working, and that the only cure is to give the fullest publicity to the facts. The National Coal Association is undertaking this work.

In order to obtain better treatment for the coal-mining industry from the railroads the association has organized a traffic department. It has been contended by coal producers for months that the industry was being discriminated against in favor of other classes of shippers. The traffic department has been instrumental in bringing convincing facts in support of this contention to the attention of Dr. Garfield, Judge Lovett, the Director General of Railroads and the Interstate Commerce Commission. Moreover, many matters relating to embargoes, mine supplies, mine ratings, car distribution, railway fuel supply, priority and other general transportation and traffic features are being constantly brought to the attention of the various Federal, state and local boards and commissions, all for the purpose of assisting in increased production of coal.

One of the fundamental causes of the extremely difficult competitive conditions which have previously prevailed in the coal business was the lack of proper cost-accounting methods on the part of the producers. That condition still prevails, and unless remedied will be the cause of as much trouble in the future as in the past. The National Coal Association has had a splendid committee of coal cost accountants and practical coal men devising a cost-accounting manual for the use of the industry. It is desired to make this manual conform as closely as possible to the form of report required by the Federal Trade Commission. When that report form is issued the committee will publish its manual and the association will establish a cost-accounting department to assist local associations and individual operators.

Connellsville and Byproduct Coke Industries in 1917

By B. E. V. LUTY

Pittsburgh, Penn.

SYNOPSIS—*The year 1917 was at once profitable and unpleasant. The production from the Connellsville region has steadily decreased because of insufficient transportation. The by-product production on the other hand steadily increased with good prospects of still further large advances to be made in the coming twelvemonth.*

THE Connellsville coke industry had a remarkable career in 1917—one that was profitable indeed, but not altogether pleasant. It was late in November, 1916, that the railroads first failed to move all the Connellsville coke that required movement, and from then until the end of 1917 there was no time at which the coke movement was adequate to the requirements of consumers, chiefly the blast furnaces of the Pittsburgh Valley and Lake front districts.

By the beginning of 1917 spot furnace coke had already advanced to \$10 a ton, and at no time in the early months of the year did it drop much below that figure. Just after Independence Day there were sales at \$16, the top point not only in 1917 but in the whole history of the Connellsville coke industry. There were a few contracts in force for the first half of the year at \$2.75, secured by consumers who had had the courage, the preceding September, to enter into contracts at such a high price. Those who did not have the courage paid the other prices.

WHY WAS THERE A SHORTAGE OF COKE?

There was a question all the year why there was not more coke and the various interests answered the question each according to his fashion. Consumers were strongly inclined to the opinion that the operators were purposely restricting production and the only flaw in the argument was that that would be the first time Connellsville operators had ever been able to agree among themselves on anything. The operators attributed the scant production at one time to labor shortage and at other times to car shortage.

In June the priority authorities at Washington issued an order on the railroads in favor of the movement of Connellsville coke, but there were no discernible results. The railroads insisted that when they furnished more cars the coke operators did not load them, the coke operators rejoining that their labor had migrated to other employments when there were not enough cars, and that the only thing to do was to continue full car supplies until the labor could be gotten back. Toward the close of the year the operators insisted that they had ample supplies of labor, but by that time the railroads were powerless to do anything, all divisions being badly congested.

Statistics presented by the Connellsville *Courier* of shipments from the Connellsville and lower Connells-

ville region will show how the movement fell off in 1917. The figures refer to net tons:

	1916	1917
First quarter	5,613,831	4,422,714
Second quarter	5,641,215	4,821,399
Third quarter	5,326,192	4,574,772
Fourth quarter	5,073,264	3,987,296
Year	21,654,502	17,806,181

The decrease from 1916 to 1917 was 17.7 per cent., while the decrease from the best quarter of 1916 to the poorest quarter of 1917 was 29.4 per cent.

DECREASED PIG-IRON PRODUCTION

In 1916 about 45 per cent. of the coke consumed by iron blast furnaces was Connellsville. The blast furnaces of the country operated practically full, the total production of pig iron, including small quantities of anthracite and charcoal iron, being 39,434,797 gross tons. In 1917 the production was about 38,600,000 tons. There should have been a large increase, for in 1916, in May and later, four new blast furnaces were completed, and in 1917 14 additional furnaces were finished, the major portion of them in the middle months of the year. The 18 new furnaces had a capacity to produce more than 3,000,000 tons of pig iron, and it is safe to assert that if there had been a full supply of coke throughout the country the 1917 pig-iron production would have been 41,000,000 tons.

There was some shortage of coke apart from the shortage of the Connellsville product, but if the Connellsville region had shipped as much coke in 1917 as in 1916 there would have been plenty for all the furnaces. The region was not really required to ship altogether as much, because a number of furnaces that had been depending on Connellsville coke completed by-product ovens. In several cases, however, they took Connellsville coal instead, and the railroads had to haul that coal, so that it would not be fair to blame the shortage of coke entirely upon the railroads, even though it were proved that the coke works would have been able to ship the coke if the cars had been provided.

GOVERNMENT PRICES

The Lever, or "food control," act approved Aug. 10, 1917, empowered the President to fix prices on coke. He had no such authority with respect to iron and steel, except such as would be bought by the Government. An agreement was sought with the iron and steel producers, on the basis of their naming "one price for all," the Government, its Allies and the general domestic trade. A meeting of the iron and steel interests was called for Sept. 21, the coke producers being also invited. The War Industries Board sought the lowest prices the producers would offer, and a schedule was drawn up covering certain prices for iron ore, pig iron and steel products, coke being included, at \$6.50. This schedule was presented to the President, and on Saturday, Sept. 22, it was confidentially announced to those

who had remained in Washington that the President had approved the iron and steel prices, but had cut 50c. off the coke price. On Sept. 24 public announcement was made by the Government.

Thus it was the President who set the price of \$6 on coke. It was not an agreement, as \$6.50 was the price the coke producers had agreed upon. The Lever Act did not prescribe the manner in which the President should reach his decision, nor the manner in which he should announce it. The quibble that a few coke operators afterward raised, that they were not bound by the \$6 price, did no credit to their intelligence, and still less to their patriotism.

On Nov. 10 the Fuel Administration made its own announcement, fixing maximum prices on beehive coke east of the Mississippi River, at \$6 for furnace, \$7 for foundry, 72-hr. selected, and \$7.30 for crushed, over 1-in. On Nov. 21 byproduct coke prices were announced, except for New England, at the following base prices: Run of ovens, \$6; selected foundry, \$7; crushed, \$6.50, the freight from the nearest competitive beehive production to the byproduct ovens to be added to the base prices to arrive at the price for byproduct at the byproduct ovens. On Nov. 27 a special rate was made for New England byproduct coke, there being an extra allowance of 7c. per ton of coke for each 5c. per ton of coal over 60c. per long ton of water freight on the coal used. On Dec. 31 it was prescribed that the prices already set should continue, with the mandate that "no producer or vendor of coke shall ask, demand or receive a higher price than the maximum price established by order of the Fuel Administration for any coke delivered on contracts or sales on or after Sept. 24, 1917."

BYPRODUCT COKE INDUSTRY GROWING

The following table shows approximately the growth of the byproduct coking industry in the past four years, the figures referring to the number of retorts:

	Increase	At Close
1914.....	321	5,809
1915.....	459	6,268
1916.....	488	6,756
1917.....	739	7,495

At the end of 1917 there were about 1700 byproduct ovens being built, fully three-fourths of them being expected to be completed during the first half of 1918.

In the past two years the average output per oven has been approximately 3000 short tons a year. Making allowance for lost time not caused by conditions at the byproduct plant itself the capacity would be several hundred tons greater. Inasmuch as some of the ovens are quite old, as byproduct progress goes, the most modern plants undoubtedly have a capacity of fully 4000 tons a year.

The largest byproduct plant in the world is being built at Clairton, Penn., by the Carnegie Steel Co., and yet the plant being built, comprising 640 retorts, is only one-half the size of the plant as contemplated eventually. It is expected that the 640 ovens will be completed about Apr. 1, 1918. The estimated output is 2,740,000 short tons of coke a year, equal to 4280 tons per oven. The coal consumption is figured at 4,100,000 net tons, showing the modest expectation of a 67 per cent. recovery. Apart from the standard coke to be made it is expected there will be produced 245,000 tons of coke breeze, 43,000 tons of sulphate of ammonia, 37,500,000 gal. of tar and 9,000,000 gal. of light oil. The surplus gas, which

will be used at the company's steel works in the neighborhood, is set at 60,000,000 cu.ft. a day, or nearly 7000 cu.ft. per ton of coke produced, almost double the expectations of a few years ago on the basis of the coal then in favor.

Apart from its size this plant is of particular interest. The Steel Corporation, although it owns Connellsville coke ovens, and many of them, had lighter blast furnace operations in 1917 than almost any other important interest, by reason of there not being enough coke, the shortage being attributed to insufficient railroad service. The Clairton plant will provide much more coke than the amount by which the Steel Corporation has been short and it will provide it without requiring any service whatever on the part of the railroads, as the coal will be brought to Clairton by water and the coke will be moved by the Carnegie Steel Co.'s own railroad to its nearby blast furnaces.

Connellsville Coke in 1917

The Connellsville coke region never operated for a continuous twelvemonth under so great a stress as during the year 1917. The demand for its product exceeded in volume any previous experience, and continued for a longer period. Stimulated by phenomenal prices; harassed by a labor shortage; held down by inefficient operation of plants and by interrupted and inadequate transportation—under all these handicaps the region has made a record and maintained its supremacy as a producer of the standard metallurgical fuel of the world.

Although the Connellsville region's output of 17,806,181 tons of coke in 1917 was less by 3,848,321 tons, or 13.1 per cent., than in 1916, its value was \$111,288,631, which is \$55,520,016, or 99.5 per cent. more than the value of the output of 1916.

The Connellsville and Lower Connellsville regions produced coke in relatively the same proportions in 1917 as they did in 1916—namely, 54 per cent. by the former and 46 per cent. by the latter. The operating conditions which prevailed during the year may possibly be well expressed in the words of a plant manager who stated: "Have all our ovens fired and are running them the best we can."

The following table notes in detail Connellsville production:

PRODUCTION OF CONNELLSVILLE COKE—BOTH REGIONS—FOR 1917

	Merchant	Furnace	Total Tons	Connellsville Region	Lower Region	Both Regions
January.....	597,765	966,408	1,564,173	877,313	686,860	1,564,173
February.....	518,254	770,509	1,288,763	686,908	601,855	1,288,763
March.....	614,119	1,004,850	1,618,969	918,226	700,743	1,618,969
April.....	594,506	963,741	1,558,247	868,796	689,451	1,558,247
May.....	616,622	1,033,367	1,649,989	912,035	737,954	1,649,989
June.....	580,616	983,000	1,563,616	859,947	703,669	1,563,616
July.....	581,154	958,777	1,539,931	841,354	698,577	1,539,931
August.....	598,931	956,004	1,554,935	842,130	712,805	1,554,935
September.....	566,145	898,055	1,464,200	784,884	679,316	1,464,200
October.....	584,060	925,843	1,509,903	809,667	700,236	1,509,903
November.....	535,583	814,791	1,350,374	721,190	629,184	1,350,374
December.....	481,255	740,002	1,221,257	680,468	540,789	1,221,257
Total.....	6,869,010	11,015,347	17,884,357	9,802,918	8,081,439	17,884,357

As regards oven activity, both the merchant and furnace interests began the year with 89 per cent. of their ovens in blast, increasing slightly to a maximum in midsummer and dropping off gradually toward the close of the year.

Never before in the history of the Connellsville coke trade has coke been delivered at such widely varying

prices as during 1917. The average price realized for the furnace and foundry coke shipped from the Connellsville regions during 1917 was \$6.25 per net ton at the ovens. Compared with the average of \$2.58 for 1916 output, the increase was \$3.67 per ton, or 142.2 per cent. over the previous year.

The transportation situation dominated the oven activity, for only once did the car supply really catch up with the region's capacity to produce; and that satisfactory state of affairs was merely a matter of about ten days. The car supply maintained from month to month an average rarely exceeding 65 to 70 per cent., some months falling to 54 per cent. and lower. Because of the chronic shortage of cars the actual operating efficiency of the coke plants was rarely above 70 per cent. and most frequently around 60 to 65 per cent. of the region's capacity.

Governmental regulation of the price of coke was effected on Sept. 24 when it was announced on behalf of the President that the coke price would be \$6. It was not until Nov. 10 that the Fuel Administration settled the question of a differential on foundry coke announcing \$6 for furnace, \$7 for foundry coke (72-hour selected).

One of the most important achievements in the history of the Connellsville region was brought about after numerous hearings before Government commissions. This was the removal of all differentials against the Connellsville regions eastbound and westbound on both commercial and Lake cargo coal—thus securing more equitable freight rates on coal shipped to the byproduct coking plants in both eastern and western sections of the United States.

Coal Production in the United States in 1917

The following table has been compiled largely from data communicated by the various state mine inspectors, estimates having been made only where no such statistics were available, but in all cases upon the basis of reliable information:

PRODUCTION OF COAL IN THE UNITED STATES

States	1916*	1917
	Quantity, Short Tons	Quantity, Short Tons
Alabama	18,086,197	21,000,000
Alaska	13,073	61,000
Arkansas	1,994,915	1,867,802
California, Idaho and Nevada	7,240*	5,000
Colorado	10,484,237	12,433,129
Georgia	173,554	135,000
Illinois	66,195,336	(a) 85,700,000
Indiana	20,093,528	25,013,021
Iowa	7,260,800	7,500,000
Kansas	6,881,455	7,500,000
Kentucky	25,393,997	26,125,000
Maryland	4,460,046	4,000,000
Michigan	1,180,360	(a) 1,308,947
Missouri	4,742,146	5,000,000
Montana	3,632,527	(a) 4,400,000
New Mexico	3,793,011	(b) 4,113,544
North Dakota	634,912	689,000
Ohio	34,728,219	38,000,000
Oklahoma	3,608,011	3,861,697
Oregon	42,592	43,000
Pennsylvania, bituminous	170,295,424	170,209,231
South Dakota	8,886	10,848
Tennessee	6,137,449	6,500,000
Texas	1,987,503	2,650,000
Utah	3,567,428	4,051,210
Virginia	9,707,474	(a) 9,000,000
Washington	3,038,588	3,965,000
West Virginia	86,460,127	(a) 79,806,652
Wyoming	7,910,647	8,847,748
Total bituminous	502,519,682	533,796,829
Pennsylvania anthracite	87,578,493	99,604,960
Grand total	590,098,175	633,401,789

* United States Geological Survey figures. (a) For fiscal year ending June 30. (b) Fiscal year ending Oct. 31. (c) Fiscal year ending Nov. 30. (d) Estimated.

Minecdotes

The Story of the Helpless Helper

The superintendent and the master mechanic were in the shop arranging for the repair of a broken casting when they were interrupted by a helper asking information over a trifling detail in regard to the repair job he was working on. After the master mechanic had explained at length, and the man had left, the former remarked with a sigh: "I declare, I wish I knew what to do with such fellows as that. He is a hard worker; always does what I tell him, but I swear he can't screw a nut on a bolt without I make a plan of it for him."

"Let me tell you a little story," replied the superintendent, "and maybe it will help you out. Several years ago I had a job as mine boss in a mine in New Mexico, and as it only rained down in that country about once every two years, the company had a couple of men—*mozos* they call them down there—to water the grass and take care of the yards around the houses.

"Well, the fellow I had was an old Mexican who would do anything in the world you told him—provided you told him often enough. I suppose he had watered the grass for 20 years, but nevertheless I would still have to tell him every day to water it.

"Finally, I got peeved at him one day when I found him piddling around instead of doing his work, and proceeded to bawl him out. I told him that the first day I had to tell him to water the grass again I was going to get rough with him, and I meant it.

"Well, everything went along smoothly for a month or so and old Poncho was as regular as a clock. I did not have to tell him once. Then a miracle happened one day; it started to rain, a good soaking downpour, and when I went home about five I be dog-goned if the old sinner was not out in the yard in all the wet still watering the grass!

"For the love of the Virgin, Poncho," I told him, "what in the world do you want to water the grass for when it rains?"

"Pues, Senor," he says, "didn't you tell me if I didn't water it every day you would knock my block off?"

"I told him that maybe I had, but that the Good Lord had provided him a head, even if it was empty, to use in such emergencies. So you see Poncho was like lots of men who get the habit of allowing the other fellow to do their thinking for them. That is the trouble with your helper. I expect if you would refuse to allow him to depend on you for every little detail and make him work out his own problems, even if he makes mistakes some times, it would make a better man of him."

[*Coal Age* will pay for and publish anecdotes such as the foregoing, provided the stories are of the mine and have the proper coal-mining "flavor." If they point a moral, so much the better. Dig down into your experiences and share with the many readers of *Coal Age* the humorous incidents you have witnessed in your duties around the mine, whether it be above or underground.—Editor.]

The 1917 Coal Trade of the Northwest

By W. L. KIDSTON

Seattle, Wash.

SYNOPSIS — *The Northwestern coal industry during 1917 rose from the estate of pauper to that of prince and was then dethroned, through Government price fixing. The year was an active one and scarcely ever did the supply equal the demand.*

WHILE the coal trade was probably the first industry in the Northwest to feel the effects of the world war, the stimulation of greater demands did not make itself apparent until well along in 1916, or until the orders for manufactured goods which flooded the Eastern markets began to overflow toward the West. It was not therefore until the commencement of 1917 that coal mine operators in the Northwest began to materially increase the production of their mines in order to meet the ever-increasing orders for fuel from new and enlarged manufacturing plants and transportation companies.

New flour mills were established and existing ones were enlarged, the shipbuilding industry in Seattle alone increased from \$5,000,000 in 1916 to \$150,000,000 worth of ship contracts in 1917; the copper and other metalliferous mines of the Northwest increased their production tremendously, practically the entire cycle of industry suddenly found every wheel turning and the consequent demand for the fuel to turn them as suddenly increased. Railroads were taxed to capacity and every available car and locomotive was placed in service. High rates for coastwise and overseas tonnage drew idle ships from their berths and brought every hull which would hold together from the tideflats of the Coast to be converted into steam cargo carriers. The increased coal consumption of railroads and ships alone taxed the operators and the early months of the year witnessed demands greater than the supply. This was accompanied by a steady increase in coal prices.

COAL HAS TO COMPETE WITH FUEL OIL

For years it has been freely predicted that the coal mines of the Northwest would go out of business as a result of the development of hydro-electric energy and fuel oil, and as a matter of fact coal production has shown a reduction from year to year. With coal from British Columbia entering the Northwest duty free and selling at lower prices than local operators could produce it, added to the encroachment upon its natural field by oil and electric energy, and the gradual increase of wood as a fuel, the coal business of the Northwest previous to 1917 faced a doubtful future.

Coal was an enigma. Late in 1916 the California oil fields began to experience a greater demand than they could supply and gradually curtailed their shipments to the Northwest. The placing of huge orders for fuel oil for the Navy caused a sudden withdrawal of this fuel and this section suddenly realized it was in for a cool winter if sufficient coal could not be secured. As a result there was a wild scramble for

what was then literally "black diamonds." Apartment houses, industrial plants and others hastily converted their boilers to coal burners, pocketing their chagrin, and in some cases huge expense, with as good grace as could be expected under the circumstances.

Labor strikes in British Columbia tied up production, the Canadian coal surplus was needed at home and shipments across the border ceased almost entirely. Northwest users of British Columbia coal were cut off from supplies at a time when their plants were running to capacity and making greater profits than ever before.

"Local Mines Will Come To Rescue" stated a headline in a Seattle newspaper, and the Washington coal operators enjoyed another laugh for already their mines were producing to capacity. The demand on Northwestern mines increased over 50 per cent. in the first three months of 1917 and this had mounted to 100 per cent. in the first six months and the prophecy of *Coal Age*, in the July 21 issue, that "The Washington coal field soon will be asked to supply eight or ten million tons of coal annually instead of three or four million" appeared a fact.

COAL COMES INTO ITS OWN

Prices began to climb with the indication of a certain shortage. Lumber mills were tied up by a strike for weeks and wood for fuel became scarce. Wood burners began to look to the coal operator, as had all other fuel users who had contributed to the precarious position of Northwestern coal mines in years previous. The coal operator who did not enjoy the humor of the situation thrust suddenly upon him was indeed a sober one unless his sense of the fitness of things had been dulled by months of worry, continual trouble and the constant contemplation of a future which was doubtful in the extreme, or because of the gravity of the situation which early manifested itself.

From the depths of dejection over the ever-decreasing demand, narrowing lines of their markets, labor troubles, increasing cost of production and lower prices for coal, to a full flood of prosperity, with high prices, mines operating full time and orders far in excess of production is the brief summary of the advance of the coal trade in the Northwest in the past twelve months. Verily Old King Coal, after many years of ups and downs came into his own with a vengeance during 1917.

The coal business had hardly recognized its new prosperity when the contract with labor in Washington, with several months yet to run, was broken. The demand was met only to be again broken in a few months and met again until Washington mines were paying a higher scale of wages than any other state in the union and before the year was through Government orders permitted a general wage advance to hit the operators again. During this time two wage advances were made in Montana and one in British Columbia.

Not content with absorbing most of the extra profit in this manner fate decreed that the war demand and quarrels of railroads should take every available railroad car out of the Northwest, and coal production

began to decrease to such an extent that toward the close of the year many mines were operating at 50 per cent. capacity. To put the finishing touch to ups and downs the Government regulation of coal prices came along and administered the knockout punch—almost. Coal, once a pauper, then a king, with all paying homage, is once again at the bottom of the heap, with the consumer, the Government officials and the railroads occasionally delivering a healthy wallop for good measure.

Harassed by all, its profits negligible, it continues to do its "damndest" to get busy, for the operators realize that coal is the one product upon which practically every industry in the Northwest depends and upon these depend, in no small measure, the ships, the food, the clothing, the steel and the supplies the Government needs to prosecute the war.

OPERATORS IN A STATE OF QUANDARY

While the coal operator in the Northwest is being stood on his head until he does not know whether he is running a coal mine as a business proposition or as a charitable institution, he continues to do his bit, the while asking only that he be not legislated out of business entirely for he can see that with a cessation of hostilities in Europe there will be an unprecedented expansion in the coal industry in the Northwest. The enormous expansion of industry will continue to draw upon the coal mines for power during years to come and the coal business will again be back upon the plane from which it has been denied for many years.

While the foregoing is a general resumé there are matters which transpired during the year which deserve special mention such as the adoption of a new mining code in the State of Washington.

As a result of an understanding between representatives of District 10 United Mine Workers of America and the associated coal operators of the state the legislature adopted a new mining code which became effective during the year. It provided sweeping reforms in the coal-mining laws and its adoption marked the achievement of an end to which many years of effort had been devoted.

Previous attempts to secure the adoption of a mining code had been defeated because the mine workers sought to add to it provisions for an 8-hour day "from bank to bank" and a 2,000-lb. ton as a basis of payment. At the last session the Coal Operators Association interposed no opposition to the various mine-safety provisions for the exclusion of the eight-hour provision. This secured its speedy passage. While it has not been in effect long enough to give a report on its success it may be said that it has proved satisfactory so far though the expense to the operators has been enormous.

Evidence of a coal shortage in the Northwest began to manifest itself as early as last April and a more acute shortage was indicated in Oregon, Washington, Idaho and Montana than in any previous year. Dealers in Oregon were forced to turn to Utah mines for adequate supply but owing to the fact that Australia had ceased to ship to California that state began to take 85 per cent. of its needs from Utah instead of 15; higher prices prevailed in California and Oregon consequently suffered.

Washington mines which had produced 2,400,000 tons of coal in 1915 and 3,038,000 in 1916 bid fair to pass the 4,000,000-ton mark with demands approximating 8,000,000 tons, and where before Utah and Wyoming mines as well as those in Montana had been able to supply the Idaho, Montana and eastern Washington markets, shipments from the first two states to California and to points east of Salt Lake City resulted in Idaho and eastern Washington looking to western Washington for their supply. In the third week in November 4,000 tons of Washington coal were shipped out of the state, 73 cars during that week were shipped to Oregon, 10 to Idaho, 4 to California and one to British Columbia.

The state fuel administrator in Idaho estimated that 680,000 tons of coal were shipped into that state from the Utah and Wyoming mines between May 1916 and May 1917 and during the first five months of 1917, 338,000 tons, but shipments were greatly reduced during the next five months. In November 1916 Idaho received 50,800 tons of coal from Utah and Wyoming but in last November this had fallen to 9,400 tons, as a result of California's demands on these mines. In other words, the year's demand in Idaho increased from a little more than 700,000 tons to 850,000 tons with less than 600,000 tons being shipped in 1917 to meet the larger figure of demand. It is likewise estimated that the demands next year will be increased 30 per cent.

Winter needs of eastern Washington, which are between 90,000 and 110,000 tons, are usually met by the Utah and Wyoming mines, but owing to the discontinuance of shipments from that district the demand will have to be met by Montana and western Washington mines.

While the 1917 production of British Columbia coal will equal if not exceed the production of 1916, the demands were greater by 40 per cent. last year. The production for the first ten months of last year follows: January, 197,636 tons; February, 212,050; March, 244,145; April, 167,033; May, 155,617; June, 150,870; July, 192,610; August, 216,037; September, 195,487; October, 230,996, a total for 10 months of 1,962,481 tons as compared with 2,026,672 tons for all of 1916 and 1,611,130 tons for all of 1915. Production for 1917 is considered remarkable in view of the fact that the coal mines in the Crow's Nest district were tied up wholly or in part during April, May and June.

UNION PACIFIC WITHDRAWS FROM MARKET

During the early summer the Union Pacific Railway Co. withdrew from the commercial market, stating that it would use for its own engines practically all the output of the Rock Springs district of Wyoming. This threw a greater burden upon the Montana mines whose output has been estimated as being almost 800,000 tons above the output of 1916. In April the Oregon Short Line refused to supply the Denver & Rio Grande Ry. with its cars, and while action was taken to compel their release nothing definite was done and the car shortage became acute. Without cars the mines of Montana toward the latter part of the year had to curtail production, some as much as 50 per cent. The Rock Springs district of Wyoming during the month of October operated to but 30 per cent. of capacity. It is variously estimated that had the car supply been adequate the mines of Montana would have produced

over 1,000,000 more tons last year than the year previous.

Although coal was selling for \$2.40 a ton at the Utah mines in May an offer of \$3.50 a ton for 10,000 tons to supply western Idaho was refused because of the lack of cars. Prices in Boise at that time were \$9.70 a ton for lump coal and \$5.75 per ton for screened slack delivered.

Prices in Washington at the mine in May were: Carbonado steam stoker, \$3.25; Mendota mine-run, \$2.88; South Prairie mine-run, \$4.85, steam, \$4.75; Wellington steam, \$3.03; Roslyn pea, \$3, mine-run, \$5; Renton mine-run, \$4.70.

Government officials in Oregon in June placed orders for Washington coal at the following mine prices: Black Diamond steam, \$3.50; Carbonado steam, \$3.50 per ton.

Estimates made in that month gave the 1917 value of coal to be used in Washington as \$8,000,000 as compared with \$5,000,000 in 1916 and as a result of demand all dealers went on a cash basis June 1 and the railroads announced that coal for retail would not be forwarded after Aug. 1, which immediately resulted in another upward boost to price. An order for Nanaimo Wellington lump was placed at \$6.25 and one for Carbonado lump at \$6.65 per ton at Everett, Wash.

Prices in Seattle at the time which did not include delivery charges of from 75c. to \$1 were as follows: Newcastle mine-run, \$5.50; Renton steam, \$4.10; Renton lump, \$6; Wingate steam, \$4.90, lump, \$7.75; Grand Ridge, mine-run, \$4.25, lump, \$5.40; Black Diamond steam, \$4; South Prairie, \$4.50. Prices the year before in June were: Renton steam, \$3.85, lump, \$5.50; Newcastle mine-run, \$5; Wingate steam, \$4 and lump, \$5.55.

Prices in Idaho rose 60c. a ton between May 1 and June 1, and on the last-mentioned date dealers announced a further advance of 50c. a ton, effective July 1. The cheaper grades of coal on June 1 were selling at from \$5.50 to \$8 a ton as compared with \$4.50 and \$6 the same month in 1916. On July 1 prices went to \$6, \$8.50 and \$8.75 a ton.

DEALERS REFUSE TO MAKE LONG-TIME CONTRACTS

Coal in Seattle advanced 50c. a ton on July 1. Portland dealers quoted the city departments the following prices on that date: Tono lump, \$7 per ton; Carbon Hill fire engine coal, \$12; Carbon Hill steam, \$8. At the same time the year before prices on the above were from 50c. to \$1.50 less. On this date coal dealers throughout Oregon announced that thereafter no orders would be taken for any coal on specified amounts or delivery nor would the price be guaranteed for more than 10 days.

During July the price of coal in British Columbia advanced \$1 a ton, the second advance of that sum since May 1. Lump coal sold at \$9 and nut at \$8 a ton.

On Aug. 1 steaming coal advanced \$1 a ton in Seattle at the bunker tips, going from \$4.50 to \$5.50 a ton as compared with \$3.50 at the end of the winter of 1916.

On Sept. 22 C. S. Magrath, fuel controller for the Dominion of Canada, fixed coal prices at Vancouver as follows: Screened, delivery in sacks, \$8.50 a ton; screened at wharf, \$7.50, delivery in bulk, wagonside,

\$8; at wharf in bulk, \$7 a ton. Lump prices were the same.

Reports during July and August in the Northwest of the proposed fixing of coal prices discouraged the purchasing of coal until some definite announcement was made by the Government, the impression being general that prices would be much lower with the result that at a season of the year when consumers were usually laying in their winter's supply of fuel little if any coal found its way into the consumers' bins. The panic communicated itself to the dealers who refused to store in the face of possible lower prices with the further result that less coal was on hand in the Northwest during July, August and September than in any other like period in its history.

FIXED PRICES CAUSE A WILD SCRAMBLE

With the announcement of coal prices as fixed by the Federal Government a wild scramble resulted but few orders were filled because of lack of supply. Some orders then placed were only being cleared up in December. Mines in the meantime had curtailed production because of the lack of demand and at a time when hundreds of railroad cars could have been made available few were used. But in August when cars were unavailable for coal, as they were then carrying perishables, the demand for coal suddenly mounted as the result of price fixing. The operators were then unable to secure enough cars to meet the demand.

To further complicate matters the Government indicated its intention of further changing the price scale and as the public was ready to believe the revision would be downward it again withheld its orders at a time when it might have been supplied without undue trouble. Instead of prices being lowered they were raised. The original prices for Washington of \$3.25 for mine-run, \$3.50 for prepared sizes and \$3.20 for slack or screenings were increased to \$3.70, \$3.95 and \$3.45 respectively, with prices in King and Pierce Counties of \$4.15, \$4.40 and \$3.75. Montana prices were increased from \$2.70, \$2.95 and \$2.45 to \$3.15, \$3.40 and \$2.90. Still later prepared sizes advanced to \$4.05, a price higher than had ever prevailed in the state before.

The Government disregarded entirely the difference in prices that has been attached to the various grades of coal. While fixing the price at the mines for run-of-mine, the premium commercially placed on lump, egg and other prepared sizes was reduced. Simultaneously, the price chargeable by the mines for slack and screenings which formerly was almost nominal was radically increased under the Government rates. The theory no doubt was that the householder would be given the benefit of increased charges to industrial plants and establishments which have used the lower grades of coal at nominal prices. The mines unable to get the higher price with consumers demanding prepared sizes, which were but little more in price, practically discontinued shipping anything but run-of-mine. In consequence the fuel user is getting a much inferior grade of coal than formerly and is paying a high-quality price. The Government price fixing on coal is not a popular subject with the Northwestern man who pays the bills this winter.

Following the Government price setting local com-

mittees throughout the Northwest set the retail prices for the various cities based on the price of coal at the mine, plus transportation charges with a margin of profit no greater than obtained in July and in no case to exceed 30 per cent.

The final adjustment of coal prices in the Northwest resulted as follows in Seattle, the prices quoted being delivered to the nearest district from the bunkers. The top price is that set for the district difficult of access and prices for other districts ranged between:

Black Diamond lump, furnace mixture, \$7.68@8.75; Carbonado lump, \$8.75@10.25; furnace, \$7.70@8.70; Gale Creek lump, \$7.45@8.50; Grand Ridge lump, \$7.55@8.35; Issaquah lump, \$7.55@8.65; pea and screenings, \$5.70@6.60; Renton lump, \$7.55@8.75, pea and screenings, \$5.70@6.65; Roslyn lump, \$7.30@8.45; South Prairie lump, \$7.50@8.50. The above do not include stowage.

Owing to the great demand for coal during the year and before Government regulation of prices more development of existing mines was undertaken and more new properties were started in the Northwest than probably in any other year in the past 15. Particularly is this true in Washington. Some of this work may be briefly noted as follows: The Washington Portland Cement Co. purchased the Cokedale mine in Skagit County and started development work the latter part of the year. It will use the output in the operation of its

large mill at Concrete. The Wenatchee Orchards Land Co. has started the development of a recently discovered coal bed at Moses Coulee. The Pacific Coast Coal Co. of Seattle is reopening the Issaquah mine at Issaquah, Wash. Denny & Denny of Ellensburg, Wash., leased the Tanum coal property near that city and have started a crew reopening the workings which have been idle for several years. Development work has been started by L. R. Abraham T. Jones and John Waugh on a coal property on the White River near Auburn, Wash. The Washington Collieries Co., owned by Frank Waterhouse & Co. of Seattle, has started the development of a newly discovered property near Newcastle said to contain 12,000,000 tons of high-grade coal.

The Anaconda Copper Mining Co. is opening a new coal mine at Tracy, Mont., and will have 100 men at work by Feb. 1. A Great Northern Railway Co. subsidiary, the Cottonwood Coal Co., is doubling the output of its mines at Lehigh, Mont., which are expected to be producing 3500 tons daily by the end of January. New electrical machinery is being installed at the mines of the Merkle Coal Co. at Belt, Mont., which will increase the output from 400 to 1000 tons a day. Robert Smirl has started to open a coal field near Roundup, Mont., and is already selling coal to the farmers in the neighborhood for \$3.50 a ton.

The projects noted have all been undertaken within the past four months.

Anthracite in New England in 1917

BY G. G. WOLKINS

Boston, Mass.

SYNOPSIS—*Slow and inadequate deliveries, especially by water. Shippers of "independent" coal gradually reduced their tonnage for this market. Many barges diverted into other trade. Some sections well served all-rail. Federal regulation. Increased costs.*

DURING the whole of 1917 shipments of anthracite were slow and in most parts of New England inadequate. The trade no longer had the benefit of the large storage pile that had saved the country from extreme shortage in 1916. It was a case of depending upon the distributors to give this territory a fair quota of the output from day to day. A series of price advances, the considerate attitude of the Government toward anthracite, and the increasing difficulty of getting water shipments were the chief developments.

In general, all-rail deliveries were far better than those by water. On the Boston & Maine R.R. most retailers received 100 per cent. of their average tonnage for 1914-16. The New England railroads handled a considerable tonnage that moved to dealers who had normally depended upon delivery by water. Domestic sizes were railed as far as eastern Maine to make good the deficit, but it was soon found that cars could be more serviceably employed on shorter hauls. One of the largest shippers was able to deliver by water only about 70 per cent. of what had been its normal allotment for

New England, although rail shipments from the same source were larger than ever before.

Shipments were exasperatingly slow. The prudent part of the public was so well aware of this that hoarding was typical the first six months. Early in the year broken and pea were the sizes in shortest supply, but by fall it was a question of getting anything. Deliveries from the regular companies on the "circular" basis were entirely inadequate and retailers were obliged to pay the premiums asked for what "independent" coal was available. Water freights were so high that most of the inquiry for individual output was for rail delivery. The volume of other traffic increased so heavily during February and March that anthracite dribbled through in discouraging fashion. At Tidewater, for the same reason, barges were detained at loading ports a week at a time and the assortment of domestic sizes was irregular and unsatisfactory.

New England suffered, too, through enormous demands of the Government and of cities like Philadelphia and New York, and frequently coal intended for this territory was diverted. The Tidewater dealers here leaned so heavily upon water delivery from Philadelphia that interruptions were most disappointing. The cold spell in February was the worst since 1904, eight inches of ice forming on Boston Harbor. It was apparent there would be no chance for dealers to accumulate stocks, at least until mild weather, and probably not then. By April the outlook was poor for anything like normal requirements by water, and there began a wide-

spread scramble to get rail coal. With conditions as they were, it was hard to see how the deficiency could be made up and all sorts of expedients were resorted to in the effort to get supply in any volume. Small tonnages of "independent" were offered. The dull spot near the end of March quickly disappeared, and the "ultimate consumer" tried hard to get his dealer to bind himself on season supply.

During the spring individual operators were selling at the full winter circular on prepared sizes, and the way prices were tending it was felt certain the Government would step in. There were brokers making 50c. per ton on large consignments that involved practically no risk. Egg coal was getting short because of large shipments to gas companies and iron foundries, not to speak of certain railroads, all of whom were using it in place of broken. A large tonnage of hard coal was also diverted for purposes where bituminous would normally be used. Retailers would only accept orders for delivery if and when the coal could be had and at the price current at time of delivery.

The accident to the Mahanoy plane curtailing Reading shipments to Tide and the commandeering of three Reading tugs were heavy blows to this market. Receipts decreased rapidly. All-rail cars were not to be had in quantities required, and the railroads would have been powerless had the cars been forthcoming. Most of the serious aspects were in evidence early in the season. The conservative part of the public was alarmed. By May there were only four companies delivering in barges with any regularity. Through embargoes a large part of northern New England was unable to get domestic sizes. The price of anthracite screenings at retail advanced in Boston from \$4 to \$6 per net ton, and "independent" stove sold at \$7 gross, f.o.b. mines. There was also an advance in Reading barge rates from 75c. to 85c. from Philadelphia—the first advance in more than 20 years.

A large number of dealers in Maine were down to bare boards. Those whose usual sources of supply had withdrawn found it difficult to get cargoes forward. "Independent" shippers preferred to accumulate for small boats in New York harbor rather than try to accomplish shipment in larger bottoms; movement to Tide was erratic. By June 1 several of the "independent" factors that had been active were scarcely heard from, this being largely due to the attitude of the Federal Trade Commission.

The dealers hardest hit were those whose usual shippers had disposed largely, if not altogether, of the barges through which they were in position to name competitive prices. So much coal from these sources had been withdrawn, and the dealer had so little standing with the companies that still continued to ship, that he had been obliged to buy speculative coal to keep in business. Now even this source was failing.

During the rest of the year the situation got progressively worse. A certain percentage was maintained by the larger shippers until October, when there was a marked falling off, both rail and water. December was the lightest month of all.

The strong arm of the Government was evident early in the year through the broad authority granted the Federal Trade Commission. Prices and distribution of anthracite were closely scrutinized through weekly

reports, and some pointed questions were asked. The investigation with retail costs was particularly thorough, although mistakes were made in abundance. It was well known, for instance, that the reserves of the larger companies were all that prevented famine a year ago, yet the commission stopped at a comparison of actual mining, drawing inferences therefrom that coal supply would be ample. There were various local flurries over reports as to retail prices, and these paved the way for the appointment of fuel committees under the Lever Act. By the end of the year retail prices had been established officially in most of the cities.

The New England Coal Committee did good service in facilitating rail deliveries during the summer through the so-called "solid train" movement. The aggregate tonnage was not large, but it helped the all-rail territory.

April prices of the Philadelphia & Reading Coal and Iron Co. were 50c. less than the Nov. 1, 1916, circular, but quotations were not so comprehensive as in other years. Broken and pea prices were not announced at that time. The other companies did not follow so closely as in other years. Notice was given that sales were thereafter to be f.o.b. barge at loading port, delivery being at risk of consignee. The wage advance in April foreshadowed a material advance May 1, followed by the usual monthly scaling up month by month to Sept. 1, when the Government-prescribed schedule went into effect. This latter was increased Dec. 1, when a 35c. wage increase was granted. Beginning Sept. 1, operators other than the larger companies named in the order, were allowed to charge 75c. more on domestic sizes.

APPROXIMATE COST OF READING COAL ALONGSIDE BOSTON DURING 1917

White Ash	Jan. 1, 1917	Apr. 1, 1917	May 1, 1917	Sept. 1, 1917	Dec. 1, 1917
Broken.....	\$5.60	\$6.13	\$6.63	\$6.93	\$7.61
Egg.....	6.10	5.63	6.23	6.83	7.51
Stove.....	6.35	5.88	6.48	7.08	7.76
Chestnut.....	6.40	5.93	6.53	7.18	7.86
Pea.....	3.85	4.23	4.73	6.18	6.86

New rules governing demurrage went into effect on Reading barges Nov. 1. On cargo capacity of 1500 tons or less but two days were allowed for discharging, demurrage being 7c. per ton per day, no premium allowed.

Reading barge rates again advanced Nov. 2 from \$1 to \$1.25 on anthracite to Boston points, and Nov. 1 a war tax went into effect, amounting to more than 7½c. per ton.

Pittsburgh District in 1917

By B. E. V. LUTY

Pittsburgh, Penn.

As the Pittsburgh district produces a considerable proportion of the country's total coal output, it is not altogether easy, in a review of the district, to cover the developments that were strictly local in character and exclude those that were of national importance. Indeed, there is no generally accepted definition of what is included in the Pittsburgh district. There are two concrete conceptions as to "Pittsburgh coal." One is coal mined from the Pittsburgh seam, the other is coal originating within the Pittsburgh freight district. One is a genealogical, the other a railroad definition, but in common parlance the term "Pittsburgh" takes on a broader and a much vaguer interpretation. The Geological Survey does not attempt to differentiate. It calmly adopts, when referring to the bituminous coal

production of Pennsylvania, the convenient geographical lines, and gives the state's production by counties.

At the beginning of the year operators were considering the naming of a "circular price" for contracts for the twelvemonth beginning Apr. 1 and were disposed to settle upon \$2.75. This price did not seem attractive to buyers, considering that it was about double the normal price and deliveries would not end until a date nearly 15 months distant. Operators were not encouraged to name a price and as time passed and the railroad congestion continued they became less disposed to seek buyers at all, feeling that perhaps the spot market would afford them larger profits and would certainly relieve them of worries, transportation conditions being such that no operator would be safe in selling anything like his entire output.

It can hardly be said that any regular circular price was set at all. Some old contracts were renewed at \$2.75, but not as open market transactions, the operators picking those customers who had been the most indulgent with them in the latter part of 1916, when it was impossible to fill contract requirements in full. Other contracts were made at \$3 and higher prices as Apr. 1 was approached, the spot market generally ranging from \$4 to \$5, while toward midsummer it was \$5 and higher. When Apr. 1 arrived contracting, as a regular market operation, practically stopped, and such contracts as were made thereafter represented special cases, where buyer and seller chanced to be able to get together. There was considerable contracting after the so-called "Peabody agreement" in June, operators claiming it was no agreement as the Secretary of War and the Secretary of the Navy both repudiated it, and these contracts remained in force after the Fuel Administration set prices.

On Aug. 22 the Fuel Administration fixed prices, the Pittsburgh district price being \$2, per net ton at mine, for mine-run, with 25c. less for slack and 25c. more for screened. The revision of prices made in connection with the general wage advance carried all these prices 45c. higher.

LAKE COAL CONTRACTS WENT BEGGING

A particularly difficult matter was that of contracts for Lake coal. Operators did not want them, as they foresaw that by far the strongest coal market would fall during the Lake shipping season, and the Lake interests in many cases had to content themselves with contracts for fixed tonnages, settlement to be made against the spot market from week to week, whatever it might be.

One of the causes of the continued high price of coal was the fact that the buyers, in the case of Pittsburgh district coal, were largely steel interests which were making fabulous profits and had to operate, no matter what the coal cost, and in their buying operations they made no effort to conceal the fact that they would pay any price necessary for fuel. Much of their coal they bought through brokers, whose margin was likely to be larger the higher the price. Usually the instructions to brokers were to secure a certain number of carloads on a certain day. To the broker thus instructed there was no tomorrow, and prices had no opportunity to recede. Occasionally the steel mills would stay out of the market a few days, but only long enough for their needs to accumulate, not long enough for coal to accumu-

late. Operators and brokers had sufficient courage—it did not require a great deal—to hold coal for a few days, and the railroads seemed to be content with the demurrage they received. The condition presented was certainly such as to invite Government interference.

Various opinions may be held as to the Lake trade. For many years Pittsburgh operators had claimed the railroads discriminated against them, by charging them rates that figured out much more, per ton-mile, than were accorded West Virginia and southern Ohio operators, but these rates had been equalized, and one of the complaints of the Pittsburgh operators in 1917 was that they were given altogether too much of the Lake trade. The interests of the Northwest and the Lake vessel interests early reached an understanding, whereby they went to Washington and secured a priority order in favor of the movement of Lake coal on the railroads. When the West Virginia operators were unable to ship as much Lake coal as they had contracted to ship, the Pittsburgh district was called upon for more. The railroads carried out the priority order in favor of Lake coal quite fully, but coal operators charged that they found means to do so because the long haul was particularly profitable, as compared to the haul to Youngstown and other important points of line consumption.

The Pittsburgh district, quite irrespective of what Connellsville did, shipped a great deal of coal in 1917 for byproduct coking. Only a few years ago Pittsburgh coal was not supposed to count in the matter of byproduct coking, but the byproduct industry has advanced and while it does not even now know nearly as much about coal as it should, it knows much more than formerly, and Pittsburgh coal is being used more and more for byproduct coking. It is a relatively new thing to consider coal marketwise in connection with coking. Before the byproduct oven practically all the coke coked was mined at the site of the ovens, and the common conception was that the district produced coke, not coal.

One of the stimuli to the erection of byproduct ovens was the fact that since the ovens were naturally built at the blast furnaces, in order that the surplus gas might be used, and for other reasons, it was unnecessary to carry large reserves of coal land, and thus while the byproduct ovens cost much more than beehive ovens, there was a saving in capital investment because the ovens did not need to be built on extensive coal holdings. The byproduct ovens buy coal where they like, and can experiment. Some have made three-year and five-year contracts for coal, while others have preferred to buy for shorter periods. Several millions of tons a year of Pittsburgh coal is now going into byproduct ovens under various sales contracts.

More Review Articles Next Week

Every effort was made this year to get all of the general reviews in this special number of *Coal Age*. Notwithstanding that additional pages were added, it has been impossible to accomplish this aim. Our next issue will contain a number of the most interesting reviews that were prepared for us. Most of these articles that were necessarily held over cover the mechanical and operating end of the industry for the past year. One such article reviews developments in the anthracite industry and was prepared by H. M. Crankshaw, mine manager, Hazleton, Penn. Another article covering anthracite was prepared by John Haertter, division superintendent of the Lehigh Valley Coal Co. An extremely interesting résumé of Western coal mining has been written by A. C. Watts, chief engineer of the Utah Fuel Co. Other reviews will cover St. Louis coal trade, market conditions in New England, etc. Be sure and bind up the next issue of *Coal Age* with this one, and you will have the full story of coal mining in 1917.

Southern Illinois in 1917

By E. J. WALLACE

St. Louis, Missouri

SYNOPSIS—*In spite of many uncertainties and labor troubles the year was a prosperous one. Many of the labor troubles and petty strikes and walkouts were found to have been of enemy origin and toward the latter part of the season the I. W. W.'s became unpopular even in districts containing many Teutonic aliens.*

INASMUCH as it is impossible to forecast the future, it is not a positive statement to put 1917 down as the greatest coal year on record in the Illinois field, but it is likely that its equal will never be.

It was a successful year, not as successful as some operators had expected, but it out-distanced all previous years as a money-maker for everyone in the operating end. It was a most uncertain kind of future that the trade looked forward to at the beginning. Record prices then prevailed—\$4 to \$4.50 for screened sizes in a general way. These prices had all winter been a thorn in the side of the miner. He didn't participate, and that is not according to the law that the socialistic leaders preached. There was unrest, and to the lay opinion, there was some justice in this. The operators pursued in many instances a policy of "gouge" and the miner learning of it adopted the system as his own. This began to assume concrete shape in February and March in the talk of more money.

The demand for coal was so strenuous that even in periods of mild weather there was no letup. It was a shortage of cars, minor labor disputes and many little things that in the whole made the work a problem, and while prices were high, the task was not congenial.

Operators in the southern Illinois field south of the Springfield district, which is known as the central Illinois field, began speculating in February with contracts and as time wore on they grew more optimistic until on Apr. 1 there were no contracts to speak of being discussed.

Several big operations, however, had sold their outputs before this time for the year ending Apr. 1, 1918, on a mine-run basis to railroads for engine fuel. These prices were about \$1.75 for mine-run, cars furnished by the buyer.

On Apr. 1 came the demand for a further increase and the demand to annul the wage agreement which was good for another year. About the middle of the month the men got about a 20 per cent. increase to machine miners and 13 per cent. to pick miners. This did not increase production; there was congestion on the railroads and embargoes tied up traffic.

Reports that the French and Italian governments were after millions of tons of Illinois coal set the field aflame with anticipation of one glorious reign of unbridled and unlimited prices. Owing to strikes in fields west of the river there was always the incentive to reach out for business in these sections that the railroads refused to furnish equipment for.

There were no serious accidents in the first quarter in the southern Illinois field. The few minor affairs here and there helped in a measure to keep down the figures that loomed up as a record breaker for the year.

Only one fully equipped mine in the Williamson-Franklin County field (hereinafter called Carterville) remained idle and it was being put in shape for work. This was the Keystone mine at Pittsburgh. Strip and slope mines along the outcrop of the No. 6 seam all the way from Belleville south to Marion blossomed forth to add their mite, and all secured good prices.

The old C. & C. mine at DeSoto was taken over and work started on it. Several changes of ownership came about in the various districts south from Springfield. This was especially so in the Standard field adjacent to East St. Louis on the east and south. These old, small shafts began to get under the control of operators who took over several of them and their output sold to northern railroads. Every old shaft available was opened up, and the same thing pertains to the DuQuoin field south of the Standard district and north and west of the Carterville field. Options were taken here on several thousands of acres and strip mine operations prepared for. Later the Union Colliery Co. of St. Louis took over a large tract at the new town of Dowell and is now sinking a large mine.

NEW DEVELOPMENTS IN MANY COUNTIES

In Williamson County a few old abandoned shafts were prospected and plans made to bring them in. Franklin County was with one exception going full. This exception later opened up. There were many shut-downs in April and May for repairs and in some cases a rebuilt plant.

In Franklin County the Old Ben Corporation bought the four big mines at Christopher, giving this firm six mines producing about 25,000 tons daily.

The Harrisburg field in Saline County came forward with new mines and an increased tonnage. This is the only southern Illinois field that ships no coal to the St. Louis market. Its output moves up through western Indiana to Chicago and the Northwest. There was more activity in this field than in all of the others combined.

The matter of mine supplies was a serious one. There were delays of many months in securing equipment to fit up mines for the increased tonnage. Railroad coal was the order in the spring months for almost the entire southern end of the state. It is still a mystery at the end of the year as to where all of this railroad coal went.

With the opening of many mines there came an acute shortage of miners and mine help, and this has continued. Toward the last of the first half of the year the car supply became serious, but for the first time since last fall the operators except in the Standard field began to see the light of day over their order files. There was as a result of this a break in the market, but not for long.

An attempt was made by the U. M. W. of A. to have a bill passed by the Illinois legislature to prevent courts from granting injunctions in labor disputes. There still continued minor strikes here and there, and the miners began murmuring that the increase granted them was not sufficient in view of what the operator received. There was at the close of June a letup in the demand. This had been noticeable since May in domestic sizes.

The U. S. Government had in some manner promised the public lower coal prices, and inasmuch as coal was going up all of the time the papers got to kicking in, with the result that the Government intervened and the so-called "Peabody" prices went into effect. These had a tendency to stiffen up the market and it became as active as possible, considering that everything was against it.

July 1 saw Standard coal hanging on the ragged edge of production cost again.

LABOR TROUBLES WERE NUMEROUS

There seemed to be a tendency to seek cause for strikes on the part of the miners throughout the mid-summer. In Montgomery County they went out in an attempt to unionize a glass factory that used their coal. When ordered back and fined, they struck because the fine was deducted.

In the Springfield district labor troubles of this character were in the making and later came to a head in the street railway strike, when all of the miners went out. This attitude on the part of the miners, and contrary to the orders of their officers, was prevalent in a general way in the entire field.

Labor trouble in the mines of Montgomery County and in the Mt. Olive and Standard fields was evidenced by petty grievances. These were later traced to the activities of pro-German miners and others influenced by them. The I. W. W. movement was found to be getting a footing all the way from Springfield down to Franklin County. This was opposed at many places where socialism had a good start, and it was folly in a short time for an I. W. W. to show up in a mining town unless the workers were of German extraction. Even then it was not popular.

In the 5th and 9th districts, the Standard field, too much prosperity to many of the miners began to assume a serious aspect, and at a joint meeting of the operators and union officials the latter agreed to do everything possible to keep the miners at work. At Nokomis, the miners quit because of the unsafe condition of the North mine there. State inspectors verified this contention.

On July 1 the compulsory compensation act went into effect. The efforts of organized labor for years were directed toward this. Illinois is the second coal mining state and the fourth state in the Union to pass such a law. The Illinois U. M. W. of A. maintain a legal department where all compensation cases are handled free of charge.

These legal bureaus are maintained in all mining districts and about once a month the miners receive lecture instructions on the compensation and other laws relative to miners and their rights. This is the first and as far as is known the only labor organization in the world providing such service.

August saw much unrest in the Springfield and Stand-

ard districts. As a rule the employee does not know the market on coal. The uncertain prices of slack when lump is high usually makes it difficult for him to figure whether the operator is losing or making money. With the price of coal known, and higher than ever before at that time, the miners got the idea that there was some logic in the socialistic talk they heard. They felt underpaid; they wanted to participate in the general prosperity that they figured their labor helped to produce, and inasmuch as it was evident that there was no patriotic spirit in the manner that some operators played the market, they saw no reason why they should not get into the "self-centered" game too.

The mule drivers were the most aggressive and started a small strike in the Springfield and Mt. Olive districts that spread in a few days to nearly the entire field. The manager of a mine at Virden presumably gave the drivers nine hours' pay for eight hours' work. When other mines refused this, they all went down. Almost 60 mines were idle and over 100,000 tons per day was lost.

The officials tried to get the men back, but they went back when they got tired of loafing or at the insistence of their fellow workers. This was forced by President Farrington threatening to expel from the union all who failed to go to work. He notified the Coal Production Committee of the Council of National Defense and charged that the Illinois Council was to blame by claiming that the operators were making enormous profits, thus inciting the men. The operators stood firm against any concessions. It developed that President Farrington had been negotiating for a new day-wage scale when this trouble broke out. Settlement of this was delayed by the strike.

PRESIDENT PUTS STOP TO SPECULATING

President Wilson's proclamation of Aug. 21 broke up the tea party of high prices and also many other things. It put a stop to speculating in old and abandoned mines and brought the coal industry down to business with a jar that is still felt. It was a hard affair for many to get over, but in nearly every instance it was agreed as the beginning of a method that was right in war times. The jobber was hit hardest. Many mine agents who held verbal contracts were shut off and conditions were chaotic for a few days.

Sept. 1 saw peace in all of the fields. The movement for a new scale was well under way and the operators felt that this was in many respects just. Many of the younger men in the mines had previously left for factory employment, making munitions, where the pay was much better on account of steady work.

President Farrington of the Illinois U. M. W. of A. kept his men in line and proved one of the best aids that the Federal Government had in securing maximum tonnage, under trying conditions. Many locals had figured on a walk-out Sept. 1 for more money, but decided to wait. The miners at the old Hart-Williams mine at Benton refused to permit its reopening unless their future pays were insured by the Taylor Coal Co. They had lost through the failure over a year before of the Hart-Williams Company.

Attorney General Brundage appeased Governor Lowden by contending that the State of Illinois had the power to seize coal properties and operate them.

Governor Lowden complained that the new prices of Aug. 21 were not low enough. This caused a feeling of uneasiness in many places, both among miners and mine owners.

About the middle of the month while President Farrington was in Washington in an endeavor to get the Government approval for an increase the "I Won't Work" element in the Springfield district broke away and went out "until they got an advance." This displeased the authorities at Washington and put Farrington in a most embarrassing position. The Springfield affair was a continuation of the labor troubles in that city in other lines for many months. The union planned a big Sunday parade and when the authorities ordered police and militia to prevent it on account of the danger of riot, the miners became incensed over the "denial" of "their constitutional rights and free speech." They lost \$18,000 per day while they stayed out and the public lost 25,000 tons of coal each day.

Farrington came back and ordered this irresponsible rabble back to work, contending that 4000 to 5000 miners in the ill-famed labor-ridden Springfield district should not override the rules made by 80,000 other members of the union in the state.

There were other strikes of various kinds for all kinds of causes throughout the field, and these seemed to spring up as fast as they were settled or overruled.

The acts of the miners in several places bordered on open disloyalty. At Nokomis, a miner who defamed the Government and talked against the continued production of coal was arrested. A deputy sheriff who assisted in the arrest was a member of the union. The 600 men went out until he was discharged. He stayed away from work so as to keep the miners working. There was a general "laying down" by the miners. A nice, quiet way of keeping down tonnage by staying at home, that kept the honest miner idle and meant a loss to everybody concerned.

NEW SCALE CAUSES STRIKES IN STANDARD FIELD

The new wage agreement settled the matter except in the northern Illinois field where general dissatisfaction prevailed over the new scale. Up until now this had been the peaceable field. There were strikes over the new scale in the Standard field because it didn't go into effect when announced on Oct. 16, and in a few days the entire state almost was out without the authority of the union officials. This was the flagrant violation of all of their agreements and President Farrington was again forced to threaten expulsion to bring the men back to work. This lasted over a week and proved a serious handicap to the public. Any further delay in resuming work would have meant a coal famine to St. Louis and many other near-by cities.

It was evident through the recent strike that a well-trained group of agitators was at work. This became apparent after the new scale went into effect, when it became known that there was dissatisfaction over the penalty clause.

November was the most peace-loving month of the many that had passed. Only a few small occurrences disturbed conditions and then not seriously.

December found peace prevailing. There were a few arrests for the I. W. W. activities of the past few months and the Springfield local acknowledged the un-

worthiness of some of its members and backed up the union officials. Thus the year to the Illinois operator was one of labor troubles.

The few abandoned shafts that were not working at the dawn of 1917 were taken over during the year and fixed up at least temporarily. A few local mines were opened in Williamson County. Saline County was the greatest boom in new shafts, and Franklin County got a couple. The DuQuoin field "came back." There is a big mine going in at Dowell, a new mining town near-by, and much activity over some prospective shafts as well as strip mines. In the Mt. Olive field at the new town of Wilson, what will be one of the largest mines in existence will soon be complete.

There were no real serious accidents until the latter part of the year. A few small explosions resulted in the loss of one or two lives each.

The Christopher mines are dry. Dust and gas is the danger there and in November came the first mishap, with 18 lives lost. Shortly afterward the Zeigler mine at Zeigler suffered a series of explosions with the loss of three or four men.

Top works destroyed by fire were numerous throughout the state, and many of these fires were of suspicious origin.

Birmingham Coke Market, 1917

BY H. B. MCLAURINE
Birmingham, Ala.

Coke producers in the Birmingham district during 1917 had the best year in their history. The market having attained a strong position during the latter part of 1916 and at the beginning of 1917, the demand was strong and steady. Quotations on spot foundry ranged from \$10 to \$11 per net ton ovens as against \$3.75 and \$4 during January, 1916. Furnace coke was quoted at \$5 to \$6 per net ton ovens in the spot market.

The anticipated production of foundry coke was practically covered by contracts, which did not expire until July 1, 1917. Almost all of these were renewed for another year for increased tonnage at prices ranging from \$8 to \$12.50 per net ton ovens, the price being dependent in a degree on the tonnage required and the length of time the customer had been on the books of the producer. The scarcity of this grade of coke continued throughout the year, being accentuated more and more as the demand strengthened with inquiries from every section of Southern and Western territory, and quotations gradually advanced to \$14 to \$16.50 per net ton ovens at the time Government figures were announced by Administrator Garfield. The regulative figures of \$6 to \$7 per net ton ovens did not affect market conditions materially on account of the scant supply of coke over contract requirements, and the full force and effect of Government regulation will not be felt in this market before the middle of 1918, when the majority of contracts expire.

The heavy consumption of furnace coke in the immediate district by the iron makers, who drove their plants at full capacity during the year, left little of this grade of coke available for the spot trade, quotations ranging from \$6 to \$8 per net ton ovens prior to the date Government schedules became effective.

The abnormal and unprecedented demand for coke

from every quarter in 1917 caused rapid enlargement in the producing facilities, and hundreds of old-style ovens which had not been operated since 1913 were repaired and placed in commission with as much dispatch as possible. Numbers of others were forced to remain idle on account of the inability to secure coal for consumption. During the latter half of the year batteries of byproduct ovens on which construction was begun in 1916, were placed in service by the Woodward Iron Co. at Woodward, Ala., and the Gulf States Steel Co. at its Gadsden plant. While these new and rehabilitated plants added a heavy additional tonnage to the normal output of the district it apparently had no relative bearing in lessening the inquiries, the needs of the trade being insistently pressed upon the attention of the producers to the end of the year.

Production was crippled to some extent by the shortage of equipment for loading, and consumers on the gulf coast and in Texas and Pacific coast territory, who depend on Alabama for practically their whole foundry coke supply, were unable to secure schedule deliveries on their contracts on account of an insufficient and irregular supply of foreign line equipment on which the movement to such territory was dependent. The output was also curtailed by labor shortage at the mines, where coal production was interfered with. Many ovens were thus lost on account of insufficient coal for regular charging.

It is estimated that the output of Alabama ovens in 1917 will closely approximate 5,000,000 net tons. Accurate figures will not be available for some weeks yet. The tonnage for 1916 was 4,385,493.

The Cincinnati Coal Trade in 1917

By KENNETH C. CRAIN

Cincinnati, Ohio

SYNOPSIS — *From the standpoint of price received the year was satisfactory to the trade; from the standpoint of supply it was unsatisfactory. The railroads hold the key to the situation and upon their ability to handle traffic depends the prosperity of the trade.*

THE current year's coal business has been characterized in Cincinnati, as elsewhere, by unprecedented conditions, calculated to make coal men remember 1917 for a long time to come. Outstanding among these conditions were the extraordinary demand for coal by manufacturers; the extremely high prices received up to the date when prices were fixed by Federal authorities; and, above all, the inability of the railroads to transport all of the coal offered. To crown the year, Cincinnati and the surrounding territory south of the coal fields of Ohio, west of the West Virginia fields, and north of the fields in eastern Kentucky, faced an actual fuel famine, for the first time in its history.

This condition, unique in its extensiveness, its severity, and the almost complete helplessness of the coal men, may well serve as a text from which to work back to conditions throughout the year, as well as to point the moral which may be drawn from the trade's experiences. This moral is, of course, the failure of the railroads to supplement the efforts of the mine operators to produce enough coal to meet the country's necessities, and the imperative necessity of seeing that it does not recur.

At the year's close measures were being taken which should have been taken months ago. These embrace the elimination of competition among carriers, and the accomplishment of pooling arrangements, designed to relieve congestion and to expedite the movement of loaded cars and the return of empties. Indications are that this plan of facilitating the movement of coal will be measurably successful, and that in 1918 the coal trade, the public and the railroads will not be forced to face such a condition as has existed during 1917.

It would require much labor to collect figures showing in detail the extent of the car supply, as compared with the capacity of the mines and full working time. Without such detailed figures, however, and from reports made from time to time through the year by various operators, especially in the several West Virginia fields, it can be said, with a fair degree of certainty, that the car supply throughout the year has averaged more than 50 per cent. of requirements; and this is said with full knowledge that the records of the railroad companies show loading figures surpassing those of former years.

In other words, the operators, in spite of Government prices lower than were desirable to stimulate production, have none the less been prepared to ship an amount of coal which would have kept every factory well supplied, and which would have given every domestic consumer all the coal required to supply warmth. That they have not been able to do so, while at the same time mining and shipping more coal than in a normal year, if not more than ever before, seems to be in no way the fault of the operators, but rather that of transportation.

It should be said, in turn, that the railroad companies have been severely handicapped by the necessity of handling record-breaking traffic of all sorts, without the opportunity, either as to finances or time, to equip themselves to meet the emergency. This is the opinion, based on generally-known conditions, advanced by local coal men and appears to be close to absolute fact.

Federal action has complicated the business of the year in more ways than one for Cincinnati. The effect of this action has perhaps been more strongly felt here than elsewhere on account of the fact that the city is the gateway through which passes the greater part of the coal destined for Lake ports. In particular, the so-called priority order by which coal destined for the Northwest was given preference both in loading and in transportation over coal for way points, has been charged by many with having operated to bring on the famine from which Cincinnati and the greater part of Ohio have suffered.

The principle of the order has not been widely controverted. It is generally agreed that it was reasonable to expedite Lake shipments while Lake traffic was open, and before severe weather drew seriously upon available supplies in the territory closer to the mines. Ohio state officials however have specifically charged that more coal than was necessary was shipped to Lake ports, and that, in the meantime, Ohio, including Cincinnati, has been prevented from obtaining even its minimum fuel requirements, with the result that widespread distress has been felt.

That this was actually the case remains a matter of controversy. The essential facts are that the Federal Fuel Administration has secured the movement to the Northwest of what is said to be an adequate amount of fuel, estimated to be 1,250,000 tons over the volume shipped last year, and that, unfortunately, early December weather in Ohio was of a severity unparalleled for 45 years. The inevitable result was a tremendous emergency demand for coal, which could not be satisfied; while the railroads, already struggling with an unmanageable congestion of traffic, wherein coal was an important factor, were confronted with the usual reduction in operating efficiency produced by heavy snow and severe cold. The net result was the coal famine referred to.

PRICES HIGH AT BEGINNING OF YEAR

The first half of the year will probably be long remembered for the prices received for coal, with bituminous screenings, the usual fuel of industry, bringing as high as \$4.50 a ton f.o.b. mines. It was the continuous heavy industrial demand, which was never satisfied during the entire year, which drove prices to this figure, and placed screenings, for the first time, at the top of the list, above prepared grades. It will be recalled that this condition was clearly forecasted during the latter part of 1916, when the industrial call for fuel was steadily increased, and prices as steadily rose in response to this demand.

With current consumption approximating production, or, at least, the shipments forwarded, it followed that large consumers were unable to lay in any substantial reserves of fuel, and the peak of consumption, when cold weather arrived, unseasonably early in October, rapidly brought on the condition described above. At the same time, the unusually high prices prevailing led many dealers, wholesale and retail, to refrain from making commitments for future supplies, and from purchasing coal for storage during the summer months, until it was too late. This, again, was a prominent factor in bringing about famine conditions. It seemed, in fact, that everything combined to produce a situation which, although it might have been expected to result from the conditions prevailing, was rendered far more acute than it would otherwise have been by unseasonable weather and by transportation complications.

The anticipation of Federal regulation of prices was early a factor in the situation. It became evident during the summer that the Government would attempt to control prices, and this was done in August, when mine prices were announced. These prices were materially lower than those tentatively fixed at the meeting of coal operators with Secretary Lane, when he enthusiastically declared that the operators, in agreeing to prices materi-

ally lower than those prevailing in the open market, had made a patriotic sacrifice.

The public, naturally, waited to get coal at the prices thus announced. As coal men pointed out, however, the fixing of prices did not automatically produce coal, and there seems to be no doubt that many small operations found it unprofitable to do business at the Federal prices, and therefore closed down. However, in view of the inability of the railroads to handle the coal offered, and of the heavy shipments forwarded in spite of this, it cannot be said that this factor contributed materially to the general shortage of fuel.

As many large operators were fully sold up before the Federal order went into effect, they were obviously not affected by it, since this order could not invalidate existing contracts or alter prices for coal sold. On the other hand, much coal went forward, under the priority order, at prices not affected by the Government schedule. Thus while the trade did not attempt to evade the Federal figures, as to coal to which they could apply, conditions generally were such that the first season of Federal regulation was hardly a complete success. At the same time, prices would have soared to even higher levels had not some check been imposed, and the shortage would have occurred just the same, on account of transportation conditions.

Cincinnati profited, as it always does, by the fact that the Ohio River furnishes a transportation medium for coal which is independent of railroad congestion. The volume of coal moved on the river does not compare with that handled by rail, but it is none the less a decidedly useful addition to the amount received at this point. In 1917, however, unusual interest was attached to river shipments by reason of the use for the first time of the partially-completed system of Government dams as an active factor in facilitating traffic.

MAKE OHIO NAVIGABLE ALL YEAR ROUND

These dams are intended eventually to provide a river stage of not less than 9 ft. the year around from Pittsburgh to the mouth of the Mississippi. There will be no such thing as a low-water, non-navigable stage of the Ohio when the dams are finished. On the river above Cincinnati many of the dams are completed, and in 1917, for the first time, their services were called into use other than as means of providing a series of relatively deep pools. This is what is meant when it is stated that they were actively used.

The upper river dams were used on several occasions to neutralize a non-navigable stage. By carefully timing the movement of coal fleets, and releasing the water from dam to dam as required, artificial waves of several miles in length were created. On the crest of these waves good-sized coal shipments moved down the river to Cincinnati and other points, supplementing the limited supplies of coal on hand.

There were times when the river was so low that these artificial rises or waves were not possible. At the same time, they illustrated in a highly practical manner the usefulness of the Ohio River improvements and gave point to the assertions of supporters of inland waterway improvements that at least a partial solution of traffic difficulties lies in this direction.

What has been said above applies, in a general way, to the retail trade in Cincinnati as well as to wholesalers,

operators and operators' agents doing business in and around the city. The retail trade has had repeatedly the unusual experience of being entirely without coal to deliver to its customers, and of refusing orders because it could not fill them. The year's business for the retailers was entirely satisfactory as to price, as the first half of the year was without Federal or other restriction in this respect, and for some time after Federal prices were fixed, the retail trade was without coal bought at the new figures, and was therefore immune from compulsory sales at figures based on the Government mine prices. Conditions cannot be called satisfactory from a business standpoint, however, when the trade is prevented from doing business by lack of coal; and this was the position of the retail, as well as the rest of the trade, when the year closed.

Prospects for 1918 are that demand will continue on a heavy scale. It remains to be seen whether pooling and other forms of coöperation among the carriers, with Federal aid, will enable the coal trade to supply that demand. The key to the situation is now, as it has been for more than a year, the ability of the carriers to supply cars for loading, to move the loads promptly, and to return empties to the mines after delivery and discharge.

Baltimore Trade in 1917

There will probably be little regret in the coal trade here over the passing of 1917. The New Year has been entered with the fervent hope that business, under various Government regulations and restrictions, will soon work down to an equitable basis. The old year was not without its good points, but there was so much of uncertainty as to the entire situation, so much of mental and physical strain in many cases to meet Government demands or threatened acts that would have proved detrimental, that the coal men can get little pleasure from retrospection.

There were few business failures and changes were unimportant. And while the coal man had numerous slack periods because he could not get the fuel to dispense to the tremendous demand that faced him, he at other times made larger profits than ever before and the year worked down to a pretty fair earning basis, at least for the soft-coal interests. The hard-coal men, bound tighter by price regulations, had more of difficulty to overcome, but the majority managed to pull through in good shape.

The year 1917 was ushered in in unusual form for the bituminous interests, since even at that time the demand was running far ahead of the deliveries because of inadequate transportation, and prices for spot coals had mounted to \$5 and \$6 mine basis in many cases. Low- and high-grade coals all looked alike in this selling. Producers and middlemen held tight to high contract rates, and closings over the year between Jan. 1 and Apr. 1 mounted in many cases to \$4.50, and even at these figures the consumers could not be given all they sought.

Around the first of April, while a number of usual contract makers proved price shy and decided to buy in the open market in the hope that the prices would break during the summer, there was no over-supply of offerings of contracts. Many of the consumers who

remained out have since paid dearly for the move, both in high prices for spot coals before Government rates began and in enforced curtailment of work afterward by reason of inability to get fuel as desired.

The story of the trade here over-summer was about the same as with the rest of the country. The first Government request-price at the mines of \$3 saw consumers rushing to coal offices demanding fuel at that figure, only to learn that the coal men, with transportation slow, were unable to cover even their contracts at much higher prices, and could not sell the new-price coal. Three-dollar coal was rather a myth in this section, as was also the \$2 coal price later set by the Government. The summer and early fall, in fact, saw practically no movement outside of contract coal, or Government-priced coal, plus haulage and other charges, in order to "beat the devil about the stump" and make possible a production at the \$2 mine basis. The coal men here were among the first to protest that many mines could not produce at \$2 and the numerous closings in Maryland and West Virginia proved the case.

The fall and early winter proved a grand scramble to the trade. Much of the time was spent in re-adjusting office forces because of the military demands of the nation, and in working out numerous Government reports and schedules. Contract business continued the overpowering feature, where coal could be secured at all, although there was some little Government-priced coal, under the third price arrangement, disposed of in this territory.

Winter saw a big test of every energy, with coal men distracted, transportation interests plainly much at sea, and with Fuel Administration orders by the quarter of a peck to keep things bubbling. Throughout all the turmoil the coal men have kept the industrial works here supplied, at times with almost famine-like supplies it is true, but while there were plants that had to cut down service and lay off men, no actual closings for any length of time were recorded.

During the year the jobbers of Maryland formed an association, and they are waiting for the final Government-control plans, which may be delayed until April, to find out just what their status is to be. That these men are needed as a distributing factor has become more and more patent, and the final shakedown will probably give them official recognition.

The anthracite dealers here worked through the early months of 1917 without being able to get anything like the amount of coal they needed, and almost from the first paid considerable premiums for the fuel they desired promptly. The delay in the spring schedule of wholesalers caused June to roll around before there were any deliveries on spring orders. Meanwhile an unusual spring consumption had caused a distinct shortage and had wiped out practically all the yard reserves. Simultaneously the sales had been continued on the old winter basis, plus certain size advances at the mines.

During the summer there was a heavy receipt of hard coal here, despite the poor railroad conditions generally, and the winter might not have approached with so severe a shortage had it not been for an unusually early fall and a consequent early consumption. The receipts from Jan. 1 to Oct. 1 were about 57,000 tons in excess of 1916, but as there was an estimated additional consumption of 90,000 tons before winter set in here, the

trade found real cold weather at hand with a shortage of 37,000 tons or thereabouts, and with the receipts under the rail congestion down to about one-half of what they should be in normal times. In December the receipts dropped back to about one-third of normal, and yard supplies were so far depleted that the city

faced a fuel famine. Only the most judicious work, with the retail coal exchange aiding the fuel administrators, prevented real hardship and alleviated much of the existing suffering.

With such a record, it is small wonder that the coal trade here says "Welcome 1918."

Birmingham Coal Trade in 1917

BY H. B. McLAURINE

Birmingham, Ala.

CONDITIONS affecting the Alabama trade at the beginning of 1917 were most favorable, and gave promise of affording the largest volume of profitable business that the industry had enjoyed in several years. Heavy contract bookings made during the previous 12 months, on which deliveries extended over the first half of 1917, and some through the entire year (taken for the first time in quite a while at figures fairly remunerative to the operators), and undelivered tonnage on open sales, brought forward from the last quarter of 1916, during which prices reached an unusually high level, were factors which seemed to warrant an optimistic view. The shortage of equipment and labor, which had appreciably curtailed production for the past six months and held the output near a parity with the consumption, supplemented by the natural sequence of high prices, had discouraged—in fact precluded—the accumulation of any stocks in the hands of consumers. The abnormal industrial activity and heavy railroad traffic were additional factors which clearly indicated a continuous and increasing demand for fuel, which would further tax the producing and transportation facilities of the country, and maintain price stability.

The above-mentioned conditions, which augured well, materialized to a marked degree with a satisfactory period of business which extended through the first seven months of the year, and up to Aug. 21, when Government schedules carrying drastic reductions in prices at the mines were promulgated. Deficiency in equipment and labor supply were continuing factors in preventing the elimination of the disparity between production and consumption during the above period. The ever-increasing demands of industry and additional fuel requirements of the railroads above contract deliveries made inroads on the already limited free coal supply and precluded the possibility of any material recession in the prices, which never fluctuated more than 50c. one way or the other, on an average, from the mine-run quotations ranging from \$3.50 to \$4.50, which prevailed at the first of the year.

This situation confined the trade to practically spot channels. While of course some contracts were executed, they were based on prices closely approximating spot figures, and were intended primarily as a means of securing priority shipments over the spot customer, or securing for the mines a more liberal supply of cars, the lack of which caused much loss of time to operations during this period.

Domestic coal sales were confined rather closely to current and near-future requirements during the first quarter of the year, prices ranging from \$4 to \$5 per

net ton mines for lump and egg grades. Unseasonable weather caused a spasmodic demand and a slight decline in prices during the latter part of this period, but inquiries stiffened sharply in April. The usual schedule on domestic coal issued Apr. 1 was not announced until about the first of May, prices being as follows per net ton mines:

	Lump and Egg
Big Seam.....	\$2.40
Carbon Hill.....	2.65
Cahaba and Black Creek.....	3.40
Montevallo.....	3.65

Contracting by retailers at the above figures was more limited than in previous years, the usual eagerness to cover reasonable stocking requirements being little in evidence. In the meantime the steam market had taken on increased activity and a strong buying movement developed which could not be fully supplied. Domestic mines withdrew the above schedule and placed their free coal on the open market at prices ranging from \$4 to \$5 per net ton mines for lump and egg grades. This somewhat checked domestic inquiry, and much of the output was diverted to steam channels where mine-run was quoted at from \$3.50 to \$4.50 per net ton at mines. Stipulated deliveries on contracts through the spring and summer months could not be adhered to on account of shortage of equipment for loading, and labor shortage and disturbances which materialized more noticeably during the summer. As a consequence, accumulation of stocks in retail yards did not assume 50 per cent. of the usual tonnage.

On July 1 the first efforts of the Federal Government at price regulation in the coal fields were noted by the naming of the so-called "Peabody" schedule, fixing a maximum mine price of \$3 per net ton on Big Seam and similar grades, \$3.50 for Carbon Hill, Pratt and Corona, and \$4 for Cahaba and Black Creek. These regulative figures were accepted by the mines with little or no complaint, and did not visibly affect trade conditions, as they closely approximated the current quotations.

However, much dissatisfaction was expressed by certain Government officials over the Peabody figures, it being claimed that they were too liberal to the producers, and steps were taken for a downward revision, which was announced by Administrator Garfield on Aug. 21, when the following mine prices were named:

	Mine-Run	Prepared Sizes	Slack or Screenings
Big Seam.....	\$1.90	\$2.15	\$1.65
Pratt, Jagger and Corona.....	2.15	2.40	1.90
Cahaba and Black Creek.....	2.40	2.65	2.15

The effect of this schedule was to paralyze the trade, and during the period intervening between Aug. 21 and Oct. 1, when mines were reclassified and revised figures

issued, very little coal was sold. In the meantime the mines had ample business in hand to absorb their output, which had been curtailed considerably by labor troubles (culminating in a strike Aug. 20), and by car supply. Deliveries on contracts were much delayed, and only slight interruption to the output was occasioned by lack of new business.

Vigorous protests against the new schedule were immediately made to the Fuel Administration to the effect that its enforcement would cause the closing down of many mines where cost figures exceeded the selling prices named, and in other instances where the margin of profit would not justify operations. Mine owners were instructed to compile cost sheet data justifying their claims of the unfairness of the schedule, and such information was prepared and placed before the Federal Trade Commission and Fuel Administration by a committee of operators. This resulted in a reclassification of some of the mines and a revision of prices, as shown in the following schedule issued Oct. 1:

	Mine- Run	Prepared Sizes	Slack or Screenings
Big Seam	\$2.15	\$2.45	\$1.85
Pratt, Jagger, Jefferson, Nickel Plate, Coal City	2.35	2.65	2.05
Cahaba, Black Creek, Brookwood, Blue Creek	2.85	3.10	2.45
Corona	2.40	2.75	2.05
Montevallo	2.40	4.00	2.15

The readjustments effected by these revised figures afforded in the main a fair measure of relief to the producers, and were accepted as satisfactory under conditions obtaining, except that in a few instances operations were carried on under peculiar conditions, which increased the cost over other mines in the same class. Also wagon mines claimed that provision should be made for absorbing in the mine price the expense of hauling their output to railroad cars. These complaints are now pending adjustment.

TRADE RAPIDLY READJUSTED ITSELF

The trade rapidly adjusted itself to the revised figures, but during the last quarter the shortage of steam grades was further accentuated by the ever-increasing demands, and efforts of both producers and distributors were taxed in taking care of contract obligations and, so far as possible, supplying the spot demand. Only a judicious and careful distribution of the supply prevented loss of time in plant operations and closing down of public utilities. Much confusion and perplexity were occasioned by the many regulatory instructions issued by the Fuel Administration affecting the handling and distribution of coal output.

The fixing of prices of coal at the mines was followed later by the issuance of instructions regulating the retail prices on domestic fuel, based on the gross margin of profit made by dealers in 1915, plus 30 per cent. This caused much confusion among the retailers as to the proper price to be charged householders under this ruling. Dealers were finally summoned before the local fuel boards, which were empowered to fix a schedule of rates to be charged by each yard, and the prices named by these boards were made effective. The further troubles of the retailers the balance of the year were confined to efforts to get a sufficient coal supply to fill orders of their customers. Yards were kept in a practically cleaned-up condition during the last quarter of the year, much suffering being occasioned by the scarcity of domestic coal both locally and throughout

territory supplied from this field. The prices fixed by the fuel board on domestic coal only effected slight reductions in some grades, and served chiefly to prevent further increases in quotations on account of the acute shortage. Schedules ranged about as follows:

	Lump or Nut
Montevallo	\$6.25@6.50
Cahaba and Black Creek	5.60@5.90
Carbon Hill and Corona	5.00@5.50

Production in the Alabama field for 1917 will approximate 21,000,000 net tons according to the estimate of Chief Mine Inspector Nesbitt. This is 2,750,000 tons in excess of the 1916 output, the previous maximum production of the state. The demands made upon this field caused great expansion in coal-producing facilities and scores of old abandoned operations were rehabilitated, improvements made at established mines to increase output, and many new operations started. New developments, other than those merely contemplated to meet present market conditions, were not material factors in adding to the output during the past year, due to the great delay experienced in securing material and equipment for permanent and substantial construction. A number of new mines will, however, be in position to add a heavy increase to the state's production in 1918.

Buffalo Coal Trade in 1917

BY J. W. CHAMBERLAIN
Buffalo, N. Y.

The year 1917 created many and wide changes in the coal trade, especially the bituminous branch of it. Not a day passed without complaints of shortage, and the year closed with the situation worse than it had been before and the prospect that many branches of the manufacturing trade must speedily curtail operations.

For a long time the complaint was chiefly of lack of miners, but at the end of the year the car shortage was said to be responsible for the difficulty. The roads are not blamed, however, for they have not felt able to increase their equipment while fuel consumption is much greater now than ever before. Thus far Buffalo has contented itself with trying to urge coal forward and has not taken up devices for reducing the consumption in those cases where the need is a minor one. This, however, will have to be done soon.

The great difficulty at the close of the year was that the bituminous jobbers could not get coal at Government prices and practically will have to go out of business until a change is made in their favor. Some business is still being done with Canada, especially as the margin allowed to jobbers is larger there than it is here. The great scarcity of uncontracted coal will doubtless be a handicap while the present state of things lasts.

In anthracite the close of the year showed better conditions than formerly. Coal could be brought here by big train loads from the mines any day, and this was done often enough to convince consumers that no real famine is possible, even if natural gas failed.

With no figures to confirm it, the opinion is that Buffalo has handled and transmitted more coal in 1917 than in any former year, both anthracite and bituminous. The coal authorities still refuse or neglect to compile figures to show the actual movement.

In the Lake trade Buffalo has been more active than

usual, having shipped 4,106,598 net tons to the Upper Lakes as against 2,800,740 tons from home docks and 750,000 tons from Erie, Penn., in 1916. The season was closed by the big storm of Dec. 9, or the amount would have been increased considerably.

The year has made few changes in the trade personnel. Several new jobbing firms started up early in the year and did a heavy business till the Government price was fixed in August, when they dropped to a low level and are now waiting for further developments. They

include W. B. Nicol & Co., the Century Coal Co., the Montour Coal Co., the Frontier Coal Co., and the Wistar Coal Corporation. All the active members of these concerns were already in the business before. No old firms have gone out of business during the year.

The only mining change of account was the organization of the Corson Byproduct Coal Corporation, of Buffalo, with property at Elkhorn City, Pike County, Kentucky. This company has completed its developments and is now ready to make shipments.

The New York Coal Trade in 1917

By R. W. MORRIS

Brooklyn, N. Y.

SYNOPSIS — *Hardships, uncertainties and disappointments characterized the year 1917. While receipts were heavier than during the previous year, yet the demand was such as to more than absorb all coal arriving. Never was bunker coal so scarce or so many ships tied up in New York Harbor awaiting bunker coal.*

THE year 1917 has been one of many hardships for the coal trade. In no previous year in the history of the industry has the coalman encountered so many difficulties. It has been a twelvemonth of trouble which kept the trade in a continual state of unrest and uncertainty, and it cannot even now be said that these troubles are near their end. And, facing these troubles, the trade has not had the support of the public which, not knowing the underlying reasons, took occasion to put the blame entirely on the dealers without investigation and without trying to learn the true facts before passing judgment.

At no time was the local trade able to get all the coal needed. The year started with stocks depleted and there have been days when not a cargo of either free anthracite or bituminous could be picked up in the harbor. This condition of affairs was aggravated when the Government in August fixed the price at \$2 per net ton at the mines for bituminous fuel. Operators promptly diverted their product, which was already down to almost actual needs owing to labor and car shortages, to their contracts which had been closed early in the year at higher prices. This created a still greater shortage of spot coal.

In addition, priority orders issued by the Railroad War Board directing preferential shipments to the west and later to New England took more coal from this market.

The announcement that the Federal Government had fixed coal prices was no surprise to the trade, it having been the belief that such action would be taken. But when the price of \$3 at the mines agreed upon at a conference with operators was upset and the \$2 price fixed by President Wilson, the operators appeared to lose heart, as it was already costing some of them more than that sum to produce coal.

The anthracite industry fared better although there was a continual heavy demand during the entire year.

Temperatures were below normal most of the time and fires which under ordinary weather conditions would have been extinguished early in April were kept burning until June. Bins were empty and the coal which would have been stored during May for the coming winter was consumed, thus creating an increased demand which the operators could not overcome.

At no time were the producers able to send to this market all the coal needed. While the tonnage figures showed shipments during some months larger than ever before, other sections of the country were just as anxious to get coal as was this market.

Market conditions were little affected by anthracite price fixing since the Government practically indorsed the existing prices for the domestic coals and advanced the price of pea to \$4 per ton at the mine, an increase to some operators of \$1 a ton. Later on this order was modified to the extent of reducing the price for pea coal to \$3.40 per ton at the mines. Still later, early in December, following a series of conferences between the operators and representatives of the mine workers, wages were increased and the operators were permitted to add 35c. per ton to the prices as fixed by President Wilson.

There were several investigations during the year both of the wholesale and retail interests, none of which resulted in anything being accomplished. Almost throughout the entire year the local trade has been under the supervision in one way or another of representatives of the Federal Trade Commission or of the Fuel Administration, who have always received the hearty coöperation of the dealers, both wholesale and retail.

An indication of the seriousness of the coal situation here may be found in the fact that in April last when bids were asked by the Government for furnishing between 60,000 and 100,000 tons of bunker coal for the Panama R.R. no proposals were received.

The situation with regard to the smaller anthracite sizes used for steam purposes was extremely serious all year. There was a heavy demand and prices remained high. Operators were not inclined to make their usual contracts and retail dealers were thus unable to close their usual agreements with the owners of the office buildings and similar structures where the buckwheat coals are used in large quantities. It was a "hand-to-mouth" trade and in the early fall it became necessary to curtail consumption wherever possible. In November many of the owners of office buildings sent notices to

their tenants setting forth the situation and requesting that wherever possible electricity and heat be saved.

An important movement during the year was the organization of the Wholesale Coal Trade Association with a membership of more than half the wholesale dealers located in New York City. This organization, although newly formed, has already taken a prominent part in coal matters both here and in Washington.

THE ANTHRACITE SITUATION

The year opened favorably for anthracite consumption. Weather conditions, however, interfered greatly with the handling of coal at the docks and supplies were scarce. These conditions were reflected in the quotations for individual coals of from \$8.75 to \$9 for mixed domestic sizes. Offers to furnish the New York City departments with buckwheat No. 1 were submitted at a price of \$7.69 per ton.

Low temperatures kept prices for individual coals up and supplies tightened to such an extent that when the city asked for bids for domestic coal the best it could get was from \$9.98 to \$10.87 and from \$8.85 to \$9.48 for pea coal.

In February conditions became worse. A heavy snow-storm caused a sharp advance and there was a general clearing out of all speculative coal at the New York Tidewater. Retail dealers who had been for several weeks finding it harder and harder to obtain coal began to get anxious as to their future supply. Few contracts for the buckwheat coals that were closed showed advances of from \$1.25 to \$1.50 per ton over the previous year's figures.

By March conditions outrivaled any previous situation with regard to supplies. Stocks were at their lowest ebb and individual coals were quoted at about \$1 above the regular company schedule. Under ordinary conditions demand would have fallen and individual coal would have been selling below the usual April prices.

The coal year opened on Apr. 1 without the usual activity in coal movement, for the reason that there was none to move. Stocks were depleted and although the Spring discount had been applied to egg, stove and chestnut coals, the wholesale interests had none to offer for immediate delivery, although they were willing to accept orders subject to delivery up to May 1. Dealers' books were filled with orders and buyers were hard after deliveries. Prices for individual coals were governed almost entirely by the weather temperatures. There was a heavy call from the West and the producers diverted considerable tonnage to western points.

In May there was an advance of 25c. per ton for domestic coals to cover an increase in wages granted the mine employees although their agreement with the operators had three years yet to run. This was in addition to the usual monthly advance of 10c. made during the five summer months to cover the spring discount. This made the prices for white ash coal at the lower loading docks in this harbor as follows: Broken and egg, \$5.30; stove, \$5.55, and chestnut, \$5.60.

Inquiries were plentiful but receipts were below normal. Coal was being sent into New England to meet the increased demand. Individual operators were getting more for their coal from inland dealers than they would have gotten on a Tidewater basis and their coal moved accordingly. The daily newspapers began to

print scare articles of a possible coal famine and this resulted in a more urgent demand.

There was a let-up in demand in June but this did not relieve the situation sufficiently to head off an appeal from the up-state mayors to the President to make it possible to purchase coal at reasonable prices. In spite of the heavy production the law of supply and demand prevailed and the individual operators had no trouble in getting rid of every pound of coal produced by them. The retail dealers too were getting more than normal tonnage but were filling their customers' bins. Stocks were low at Tidewater and middlemen who depended upon free coals found little to pick up.

The first quarter of the coal year showed a good increase in production, much of which was attributed to the distribution and use of the small sizes. Market conditions were reversed for this time of year. Instead of a practically dead market conditions were as tense as they usually are in the middle of winter. There was no easiness in the trade. The mines were striving to get out a maximum tonnage and dealers were endeavoring to relieve themselves of the many orders on their books, some of which had been entered in April. The situation assumed a more serious aspect. Instead of the usual surplus of coal everybody was short and the bulk of the receipts were being stored in cellar bins. The steam coal situation continued to be strong but prices were easier.

Conditions did not show any improvement in August. Producers were making a record for themselves while the dealers were as busy as if it had been mid-winter instead of mid-summer. As was to be expected, there was a let up in the call for the buckwheat coals, but even at that there was little opportunity for the operators to place these sizes in storage.

On Aug. 23 President Wilson announced the prices at which the anthracite coals could be sold, permitting individual operators 75c. more than the prices for company coals. There was practically no change made in the existing schedule, which to many indicated that the Federal authorities were satisfied that the producers had not taken advantage of the public in setting their prices.

For several weeks dealers had been waiting for the Washington announcement and they were now satisfied. The industry seemed to take on greater activity and operators did their best to increase production. The situation in the bituminous market was being reflected in the demand for the buckwheat coals and the surplus of these sizes was soon removed.

DR. GARFIELD CAUTIONS BUYING PUBLIC

About this time Dr. Garfield, in a statement, cautioned the public about buying too freely at the then existing retail prices but to wait for the announcement of the retail prices to be fixed under Government supervision. This advice was to all intents not followed, for consumers kept on clamoring for fuel.

With the approach of late fall conditions did not improve and it was apparent that the trade was to face a hard winter. The domestic coals were scarce and the authorities had ordered heavy shipments to relieve the western situation before the close of Lake navigation. This resulted in the receipts at New York Tidewater being further reduced and appeals were made to the Fuel Administration for relief.

Reports of factories and various other plants closing down because of the scarcity of fuel became current and some had to suspend operations temporarily. This relieved the situation with regard to barley coal but this relief was only temporary.

November and December proved to be active months. Supplies were extremely scarce and many middlemen had no coal to offer. The companies were scarcely able to take care of their regular customers here, much of their output being sent to the West and to New England.

Local conditions were extremely serious, particularly among those who live in the poorer sections of the city and who buy their coal by the pail or hundred-weight.

The year ended in a whirlwind rush. In the first place two heavy storms tied up shipping and deliveries, and one of these storms was followed by intensely cold weather for the early part of December, while during the last few days of the month the mercury registered near or below the zero mark, causing much suffering.

Early in the month the operators were given permission by the Federal Fuel Administration to increase their prices 35c. per ton, the mine employees securing an advance in wages at the same time which practically absorbed the entire increase in the price of coal.

Coal movement was at low ebb. No one had anything to offer and the retail dealers were being rushed for fuel. The situation became extremely serious and the fuel administrators called in the dealers to assist in solving the problem. Committees were appointed and it was agreed to adopt the fuel card system, whereby a buyer had to signify the actual condition of his bin. It was also agreed that the coal peddlers would be given a certain tonnage weekly.

Many yards were without stocks most of the time and there were intervals during which the city contained less than two days' supplies. Efforts were made in all directions to conserve fuel, such as keeping dark the electric signs along Broadway two nights each week, and tenants in the big office buildings and elsewhere were asked to be as saving as possible with heat and light.

THE BITUMINOUS SITUATION

Conditions in the bituminous market paralleled the anthracite situation in many ways. There was a shortage of coal nearly the entire year, together with a labor shortage and poor car supply. At the opening of the year there was a sluggish demand and congestion at the piers. Contract making was not brisk at the prevailing quotations of from \$2.75 to \$3.50, with most of the larger companies closing at the last named figure. Some buyers hesitated before signing for the year's supply believing that better bargains would be had later on.

The question of providing bunker coal was brought to the front early in the year by the crisis in international affairs. Congestion at the piers crippled the railroads and the lack of bottoms for export trade caused a serious blockade and numerous embargoes. The railroads began to pick up heavy tonnages of fuel for their own use. Manufacturers began to feel the pinch early in March and numerous complaints were made. There was a stiffening of prices.

The threatened railroad tie-up caught New York with less bituminous than had been on hand for some time. Shipments had been light for several weeks and oper-

ators were getting behind on their contracts. The settlement of the impending railroad labor trouble caused a downward trend in prices, car supply showed a slight change for the better and there was an easier feeling all around.

In May the high grades were scarce for the spot buyer, all of these coals being applied on contracts. Car supply showed a slight improvement but this was only temporary. Indications pointed to strenuous times ahead. Stocks were low and there were no prospects of production being increased until the railroads were able to supply more cars. The market was over-run with buyers, many houses having sent representatives to the mines.

Buying which had been largely governed by weather conditions began to ease up in June and there was a slight sagging of prices.

The question of pooling all shipments of coal to Tidewater was agitated at this time and the announcement was made that it would go into effect on July 1. At this time the towing rates were advanced, adding another burden to the shippers' troubles. The miners were also granted an increase in wages although their contract did not expire until April of 1918.

REVOCATION OF PRICE AGREEMENT UPSETS MARKET

Two innovations to the trade, that of Government price fixing and the pooling of Tidewater shipments, which it was expected would be put into effect early in July, were temporarily postponed. The agreement as to the \$3 coal and its subsequent revocation upset the market. Operators showed themselves dissatisfied with the outcome and the supplies did not increase. Middlemen, as a rule, were without coal early in August. Movement was slow and the railroads were confiscating everything they needed for their own use. Demand was on the increase.

Operators were asking the Government to fix a price of about \$3.75 when the President announced the schedule of \$2 per net ton at the mines. There was much confusion, many operators claiming they could not afford to mine coal at that price and many were already paying more than that to produce it.

Manufacturing plant owners were appealing to Washington because of the lack of supplies and those who had neglected to make contracts prior to the President's announcement realized that they would be hard-put later in the season.

The issuing of the priority order providing for shipments to the West tended to remove more coal from this market. Operators were taking care of their contracts as best they could and spot coal was a real scarcity. Poor car supply and the shortage of labor had become serious.

Labor conditions were relieved somewhat when the operators were allowed an increase of 45c. per ton which was at once absorbed in wage increases. But this did not increase the quantity of spot coal, the operators being no better off financially than they were with the \$2 price.

A better car supply was promised early in November, but it was not obtained. The ruling of the Fuel Administrator permitting jobbers to add a 15c. commission to coal which they contracted to buy previous to Aug. 21 proved to be of some slight benefit to the market. At about this time the scope of the Tidewater Pooling Ex-

change was enlarged by an order including in its membership all shippers of bituminous. This resulted in about 10 per cent. of the shippers here, who had not already joined, becoming members of the Exchange.

Business was practically at a standstill the latter part of November. Middlemen who depended upon free coals had no business except to look after their contracts. Some light was seen, however, by the cancellation of the priority order on shipments to the Lake ports, which went into effect Nov. 30.

BITUMINOUS PRICES

The following table shows a comparison of prices for bituminous coal, f.o.b. at the various loading piers in New York harbor:

Month	George's Creek	Clearfield
January.....	\$7.25 to \$8.25	\$6.75 to \$8.00
February.....	7.00 to 8.00	6.50 to 7.50
March.....	7.25 to 8.25	6.75 to 8.00
April.....	6.75 to 7.25	6.25 to 6.75
May.....	6.75 to 8.25	6.25 to 8.00
June.....	7.25 to 7.75	6.75 to 7.25

With the mine price at \$3 net ton, the f.o.b. price to consumers, gross tons, for screened coal was \$5.85; mine-run, \$5.29, and slack, \$5.29. Coal for bunker and export was selling on the basis of \$6 to \$7 alongside.

The fixing of the price at \$2 by the President's order, made the f.o.b. prices for coal from Pennsylvania, Maryland and northern West Virginia, consumers, as follows: Screened coal, \$4.83; mine-run, \$4.53, and slack, \$4.27.

The most notable feature during December outside of the extreme shortage of coal was the increase of \$1.35 net ton allowed on coal for bunker or export trade.

At no time was there any free coals available at this market. Industrial plants were closed on account of having no fuel and conditions were unprecedented. Shipping conditions were unparalleled. Vessels aggregating close on to 1,000,000 tons were tied up in New York harbor because of the lack of fuel and among them were several transatlantic passenger steamers, some of which waited five days for supplies.

The hopes entertained by shippers that the close of navigation on the Lakes would bring more coal to this market were not fulfilled up to the end of the year.

THE RETAIL SITUATION

The New York retail trade had anything but a rosy time in 1917. After going through several investigations out of which nothing developed, the year ended with conditions worse than at any previous time in the history of the trade. There was very little coal to be had, many yards were closed and there were reports that the drivers were ready to make demands for an increase in wages which if granted would result in changes being made in the calculations of the dealers upon which were based their contentions for the fixing of a gross margin, including profit, for handling coal and which was at the time, being considered by the Fuel Administration officials.

At no time during the 12 months did the dealers have sufficient coal to meet demands. Coal-burning weather continued well on to the first of June and the coal which under ordinary circumstances would have been in some consumers' bins was burned. Some dealers booked orders early in April, as usual, but carried them unfilled until well into the fall.

The shortage of coal began to make itself felt with consumers early in the fall and when the public got ready to light its fires and learned the true conditions, it became excited and demanded coal. Other sections of the country were in the same position as regards supplies as was New York, and the local dealers got no more than their share.

Government reports showed that the New York market from April to October had received from 6 to 8 per cent. more of the domestic sizes than during the corresponding period of 1916, but this increase had been absorbed by heavy consumption in April and May while heavier tonnages had been stored by house owners who had realized the conditions.

Conditions became such in November and December

Nanty Glo	Quemahoning	Fairmont	Mine Price
\$6.75 to \$8.00	\$6.75 to \$8.00	\$6.75 to \$8.00	\$4.25 to \$6.75
6.75 to 7.75	6.75 to 7.75	6.25 to 7.25	4.50 to 6.50
7.00 to 8.00	7.00 to 8.00	6.50 to 7.75	4.75 to 6.50
6.75 to 7.25	6.75 to 7.00	6.25 to 6.75	4.00 to 5.25
6.50 to 8.00	6.50 to 8.00	6.25 to 7.50	4.50 to 6.75
7.00 to 7.75	7.00 to 7.75	6.75 to 7.25	4.75 to 6.25

that efforts were taken by the fuel administrators and the dealers to protect the small buyer in the poorer sections of the city, and after several conferences it was stipulated that a certain tonnage would be sent into these sections each week.

New York Coal Exports in 1917

With the exception of coke, exports from this port were smaller for the twelve months ending Nov. 30, 1917, than for the twelve months ending Nov. 30, 1916. For 1916 there were exported 201,691 tons of anthracite with a valuation of \$1,112,377; 40,181 tons of bituminous, valued at \$154,102; and 17,311 tons of coke with a valuation of \$128,996.

During the 12 months ending Nov. 30, 1917, the exports were as follows:

1916	Anthracite	Value	Bituminous	Value	Coke	Value
December.....	9,474	\$62,298.00	4,430	\$25,358.00	535	\$9,317.00
1917						
January.....	7,934	65,068.00	2,049	9,246.00	1,660	10,972.00
February.....	4,981	35,362.00	1,731	6,796.00	1,211	11,383.00
March.....	13,720	105,657.00	3,224	19,649.00	505	6,273.00
April.....	8,339	53,106.00	171	1,774.00	1,325	18,107.00
May.....	16,714	133,327.00	995	7,147.00	1,900	38,063.00
June.....	14,693	106,173.00	1,939	14,466.00	3,650	49,646.00
July.....	15,967	108,986.00	448	2,767.00	3,434	33,238.00
August.....	3,942	29,317.00	967	7,786.00	1,763	26,359.00
September.....	26,988	205,470.00	593	3,354.00	2,901	40,736.00
October.....	3,288	21,956.00	43	487.00	1,539	20,512.00
November.....	10,856	75,502.00	1,229	9,830.00	304	7,709.00
Total.....	136,856	\$1,002,222.00	17,819	\$108,840.00	20,727	\$272,245.00

The average cost per ton received for the anthracite coal was \$7.32; for bituminous, \$6.10, and for coke, \$13.13, as compared with \$5.52 for anthracite, \$3.83 for bituminous and \$7.45 for coke in the corresponding months of the previous 12 months.

Coal Carried on New York State Canals in 1917

During the season of 1917 there were carried on the canals of the State of New York 169,107 tons of anthracite and 65,834 tons of bituminous. During the 1916 season there were carried 163,647 tons of anthracite and 49,747 tons of bituminous. There is thus a slight increase in the carriage of anthracite and a decided increase in the carriage of bituminous.

Reports of factories and various other plants closing down because of the scarcity of fuel became current and some had to suspend operations temporarily. This relieved the situation with regard to barley coal but this relief was only temporary.

November and December proved to be active months. Supplies were extremely scarce and many middlemen had no coal to offer. The companies were scarcely able to take care of their regular customers here, much of their output being sent to the West and to New England.

Local conditions were extremely serious, particularly among those who live in the poorer sections of the city and who buy their coal by the pail or hundred-weight.

The year ended in a whirlwind rush. In the first place two heavy storms tied up shipping and deliveries, and one of these storms was followed by intensely cold weather for the early part of December, while during the last few days of the month the mercury registered near or below the zero mark, causing much suffering.

Early in the month the operators were given permission by the Federal Fuel Administration to increase their prices 35c. per ton, the mine employees securing an advance in wages at the same time which practically absorbed the entire increase in the price of coal.

Coal movement was at low ebb. No one had anything to offer and the retail dealers were being rushed for fuel. The situation became extremely serious and the fuel administrators called in the dealers to assist in solving the problem. Committees were appointed and it was agreed to adopt the fuel card system, whereby a buyer had to signify the actual condition of his bin. It was also agreed that the coal peddlers would be given a certain tonnage weekly.

Many yards were without stocks most of the time and there were intervals during which the city contained less than two days' supplies. Efforts were made in all directions to conserve fuel, such as keeping dark the electric signs along Broadway two nights each week, and tenants in the big office buildings and elsewhere were asked to be as saving as possible with heat and light.

THE BITUMINOUS SITUATION

Conditions in the bituminous market paralleled the anthracite situation in many ways. There was a shortage of coal nearly the entire year, together with a labor shortage and poor car supply. At the opening of the year there was a sluggish demand and congestion at the piers. Contract making was not brisk at the prevailing quotations of from \$2.75 to \$3.50, with most of the larger companies closing at the last named figure. Some buyers hesitated before signing for the year's supply believing that better bargains would be had later on.

The question of providing bunker coal was brought to the front early in the year by the crisis in international affairs. Congestion at the piers crippled the railroads and the lack of bottoms for export trade caused a serious blockade and numerous embargoes. The railroads began to pick up heavy tonnages of fuel for their own use. Manufacturers began to feel the pinch early in March and numerous complaints were made. There was a stiffening of prices.

The threatened railroad tie-up caught New York with less bituminous than had been on hand for some time. Shipments had been light for several weeks and oper-

ators were getting behind on their contracts. The settlement of the impending railroad labor trouble caused a downward trend in prices, car supply showed a slight change for the better and there was an easier feeling all around.

In May the high grades were scarce for the spot buyer, all of these coals being applied on contracts. Car supply showed a slight improvement but this was only temporary. Indications pointed to strenuous times ahead. Stocks were low and there were no prospects of production being increased until the railroads were able to supply more cars. The market was over-run with buyers, many houses having sent representatives to the mines.

Buying which had been largely governed by weather conditions began to ease up in June and there was a slight sagging of prices.

The question of pooling all shipments of coal to Tidewater was agitated at this time and the announcement was made that it would go into effect on July 1. At this time the towing rates were advanced, adding another burden to the shippers' troubles. The miners were also granted an increase in wages although their contract did not expire until April of 1918.

REVOCATION OF PRICE AGREEMENT UPSETS MARKET

Two innovations to the trade, that of Government price fixing and the pooling of Tidewater shipments, which it was expected would be put into effect early in July, were temporarily postponed. The agreement as to the \$3 coal and its subsequent revocation upset the market. Operators showed themselves dissatisfied with the outcome and the supplies did not increase. Middlemen, as a rule, were without coal early in August. Movement was slow and the railroads were confiscating everything they needed for their own use. Demand was on the increase.

Operators were asking the Government to fix a price of about \$3.75 when the President announced the schedule of \$2 per net ton at the mines. There was much confusion, many operators claiming they could not afford to mine coal at that price and many were already paying more than that to produce it.

Manufacturing plant owners were appealing to Washington because of the lack of supplies and those who had neglected to make contracts prior to the President's announcement realized that they would be hard-put later in the season.

The issuing of the priority order providing for shipments to the West tended to remove more coal from this market. Operators were taking care of their contracts as best they could and spot coal was a real scarcity. Poor car supply and the shortage of labor had become serious.

Labor conditions were relieved somewhat when the operators were allowed an increase of 45c. per ton which was at once absorbed in wage increases. But this did not increase the quantity of spot coal, the operators being no better off financially than they were with the \$2 price.

A better car supply was promised early in November, but it was not obtained. The ruling of the Fuel Administrator permitting jobbers to add a 15c. commission to coal which they contracted to buy previous to Aug. 21 proved to be of some slight benefit to the market. At about this time the scope of the Tidewater Pooling Ex-

change was enlarged by an order including in its membership all shippers of bituminous. This resulted in about 10 per cent. of the shippers here, who had not already joined, becoming members of the Exchange.

Business was practically at a standstill the latter part of November. Middlemen who depended upon free coals had no business except to look after their contracts. Some light was seen, however, by the cancellation of the priority order on shipments to the Lake ports, which went into effect Nov. 30.

BITUMINOUS PRICES

The following table shows a comparison of prices for bituminous coal, f.o.b. at the various loading piers in New York harbor:

Month	George's Creek	Clearfield	Nanty Glo	Quemahoning	Fairmont	Mine Price
January.....	\$7.25 to \$8.25	\$6.75 to \$8.00	\$6.75 to \$8.00	\$6.75 to \$8.00	\$6.75 to \$8.00	\$4.25 to \$6.75
February.....	7.00 to 8.00	6.50 to 7.50	6.75 to 7.75	6.75 to 7.75	6.25 to 7.25	4.50 to 6.50
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Philadelphia Coal Trade in 1917

By W. D. HAMMER

Philadelphia, Penn.

SYNOPSIS—*The year just past was unsatisfactory from several standpoints. The demand was never satisfied and margins of profit were often small. Although more coal was received than ever before receipts were not sufficient to meet increased industrial and domestic consumption.*

Anthracite

THROUGHOUT the year 1917 the dominating factor in the anthracite trade was the question of supply. This was always behind the demand, even in the usually dull summer months. The year started with all interests clamoring for more coal, yet never being able to catch up with their needs. During the month of January the weather was somewhat mild and this helped the trade during what otherwise promised to be a trying season. The sizes in strongest demand were stove and pea, and at times the individuals were able to obtain premiums as high as \$1.75 for these sizes. In the steam coals there was a particularly heavy demand for buckwheat, with many premium sales around \$3.75, and some reported at \$5 occasionally, as against the company circular of \$2. During this month many of the individual shippers advanced their prices 25c. a ton to their regular customers.

With winter weather in February the demand became heavy and premiums became quite common, with a flat price of \$5.50 being paid for egg, stove and nut coal. Pea was especially scarce and many dealers were unable to obtain anywhere near the quantity required. During this month the Philadelphia & Reading Coal and Iron Co., the leader in the trade, issued a new circular in which it eliminated quotations on all sizes except egg, stove, nut and pea coal. The quotations on broken and steamboat coal, together with all the steam coals, were given on application. A surprising feature was the advance of the buckwheat price to \$2.50 per ton to those not covered by contracts. This brought this size close to pea coal at the circular price of \$2.80, and gave the indication that the new contract prices on steam sizes would be considerably advanced.

During the month the District Attorney began an investigation to learn if collusion existed among the retailers to advance prices. The dealers were so busy trying to get coal that this investigation gave them but little concern. They had been investigated at least three times within the two previous years, the latest inquiry only showing that they were working on a narrow margin of profit.

The demand for buckwheat coal continued strong throughout the month, with many users of soft coal evidencing a desire to contract for this size.

March was a particularly exciting period in the trade. Early in the month all sizes were so scarce that the dealers were asking for coal regardless of size. In addition there was much speculation as to what the

new contract steam prices would be for the year beginning Apr. 1. Premium prices, the highest of the season, were being paid for all domestic sizes; some of these quotations were as follows: Chestnut, \$5.50; stove, \$5.40; pea running from \$4 to \$4.50. Buckwheat continued to be heavily sold around \$2.50, while reports were heard of several contracts being made for large tonnages at \$3.

At this time there was a reduction of 25c. per ton in freight rates to Philadelphia, making the prepared coal rate \$1.40 and that on pea \$1.25. The demand for steam coal became so brisk that large quantities of pea were contracted for by manufacturing interests at a price of \$3.50. This was 70c. in advance of the current circular price on this size. Toward the close of the month there was much speculation as to whether the companies would make the usual 50c. spring reduction from the circular prices.

USUAL REDUCTION SHOCKS DEALERS

During the last week of the month the dealers almost ceased buying prepared coal, seeming to want as little of these sizes on hand as possible because of the reduced freight rate taking effect in April. There was great surprise when the Philadelphia & Reading company announced its spring circular with the usual 50c. reduction, pea coal being offered by this company at \$2.30 at the mines.

The individual shippers were shocked at this price. The other large companies followed the lead of the Reading except as to pea coal, which some priced at \$2.80 and others at \$3. It was felt, however, that there would be little coal for sale in view of the heavy contracts entered into by the large companies. As to steam coals the same prices that had been in effect all winter were adhered to. Several of the large companies announced that they expected to contract their coal to a very limited extent, something entirely new to the trade.

With the announcement of the 50c. reduction in April the retail men were flooded with orders. The general public had become convinced that coal was going to be scarce during the coming winter and therefore ordered for spring delivery in a greater volume than ever before. Yet within a week of the announcement of the new prices the shipments on the dealers' orders were so small that they refused to book any more orders until it was seen whether they would receive sufficient coal to fill them. Pea coal was particularly hard to get and as the retail price was based on the Reading company's figure of \$2.30 many dealers faced filling orders at a loss. As the month wore on the demand upon the wholesalers became so strong that they no longer solicited business and most salesmen were withdrawn.

Toward the end of the month with war imminent the people became particularly anxious for coal, especially on early orders. The miners also demanded an increase in wages and the retail men feared if this were granted they stood to lose considerable money on orders booked during the first part of the month,

as there was small doubt that if the miners received an increase this would be added to the wholesale price of coal. Shipments to this market did not improve and the individual shippers in particular seemed to have deserted this district in favor of New England where dealers were willing to pay \$1 above the winter circular in order to secure coal.

With the granting of an increase of 20 per cent. to the miners an entirely new circular was issued for May. This showed increases averaging about 30c. on all sizes, and made the new prices as follows: Broken, \$4.90; egg, \$4.05; stove, \$4.30, and nut \$4.40. Pea continued to vary, ranging from \$2.70 to \$3.10, with the individuals from 10c. to 40c. higher. Deliveries to dealers were so limited that some only took orders subject to delivery within a month or six weeks, while others refused to make a price at all. During this month some of the larger companies changed their attitude as to not contracting on steam coals and closed business with some large plants at good figures.

During this month there was a considerable reduction in the premium asked for coal by the individuals. This was solely because the Federal Trade Commission at this time made suggestions as to prices. While the commission did not have the power to enforce its suggestions, yet there was quite a tendency to heed its edicts. Even at that most of the coal mined was rushed to the New England market and the dealers here received but little tonnage. Dealers who for years had been accustomed to lay in a stock of pea coal now became considerably concerned since they had not as yet been enabled to store any of this size.

TRADE BEING PLACED ON CASH BASIS

One of the few cheering features of the trade was the fact that business was rapidly being placed on a cash basis. Shippers were insisting that accounts be paid when due and dealers in order to meet obligations refused to make deliveries without prompt payment.

With the coming of June and the first warm weather there was some slackening in the demand from the consuming public, but dealers did not slacken their efforts to secure every ton possible. A fair average of retail prices at this time was as follows: Egg, \$8.25; stove, \$8.50; nut, \$8.75, and pea, \$6.75. Premium wholesale prices were within the 75c. maximum over the circular prices as suggested by the trade commission.

During the month the courts declared the last of the anthracite tax laws unconstitutional. Although the dealers are thus entitled to a refund, the repeal attracted practically no attention whatever and it may be years before anyone asks for a refund.

Shipments were severely impeded all this month by various car restrictions and as a consequence receipts here continued to be light, but with promises that good deliveries would soon be forthcoming.

The individuals advanced their prices generally to the full 75c. maximum above company circular as allowed by the Federal Trade Commission. This made their prices as follows: Egg, \$4.90; stove, \$5.15; nut, \$5.25, and pea, \$4.45. While the companies' shipments to this city were light, yet because of the increased prices the individuals made good deliveries.

The local coal trade had expected good shipments during July, after repeated promises to this effect.

However these failed to materialize. The retail dealers now also realized that they would not be able to get any pea coal for storage, the current demand being far in excess of receipts. The prices of the individuals for this size now ranged from \$3.70 to \$4.55 at the mines, as compared to the circular figure of \$3.20. There was some weakening of steam coals at this time, particularly barley, which at times became so heavy that some of the big companies stored quite a quantity of it, as well as rice. The quantity was, however, meager compared to that stored in former years. The car supply was at this time quite troublesome and all companies began shipping in box cars. This was a distinct innovation, but the readiness with which dealers took coal in this class of equipment was a strong proof of the need of fuel.

The Federal Trade Commission continued its activities throughout this month, requiring statements of various kinds from the dealers and in many instances had representatives getting information first hand from their books.

One of the most important events in the history of fuel occurred in August, when the President issued his order fixing the price of coal at the mines. The order which was handed down on Aug. 23 gave the following prices, which were to become effective on Sept. 1.

	Broken	Egg	Stove	Chestnut	Pea
White ash	\$4.75	\$4.45	\$4.70	\$4.80	\$4.00
Red ash	4.75	4.65	4.90	4.90	4.10
Lykens Valley	5.00	4.90	5.30	5.30	4.35

These prices were fixed for the so-called "companies" or those popularly supposed to be closely affiliated with the carrying roads. For the other shippers, who are usually classed as "individuals," a maximum price not exceeding the above prices by 75c. could be charged. The jobbers' margin was also fixed at not exceeding 15c. per ton of 2000 lb., or 20c. per ton of 2240 lb. when coal was intended for delivery at or east of Buffalo, N. Y. West of Buffalo the margin was fixed at not more than 30c. An additional brokerage charge of 5c. per ton was also fixed for such coal as had to be re-screened for trans-shipment at an Atlantic or Lake port. Coincident with the price-fixing order the President appointed Dr. H. A. Garfield as National Fuel Administrator. Dr. Garfield immediately set about appointing a coal administrator for each state, who was instructed to appoint local committees for each community.

Due to extremely warm weather during the month the trade lost some of its nervousness, although there was a demand for every ton of the domestic sizes produced. If there was one weak size it was chestnut, but even this was eagerly taken by the retail men, as they realized that nut would be called upon to fill orders that usually called for pea. With the exception of buckwheat the steam coals continued somewhat weak throughout the month. At times rice could be purchased freely at \$2.15 per ton, while in many instances barley sold around \$1 a ton. The circular prices of these sizes at this time were \$2.40 and \$1.90 respectively. Many concerns took advantage of the situation and stocked heavily of both sizes. The companies also turned a fair tonnage into their own storage yards.

The trade quickly adjusted itself in September to the new wholesale prices as fixed by the President, although

much surprise was manifested at the pea coal price of \$4 as against the \$3.10 figure which had previously been fixed upon by the Reading company for fall and winter. This company finally issued a circular embodying this price. While most of the individual shippers took the full maximum of 75c., there were a number that did not add the full amount, while one added 15c.

As the month opened with summer weather there was no real activity until about the middle of the month, when the arrival of cold weather sent buyers scurrying to the coal dealers. Conditions at times bordered on panic as the people endeavored to assure themselves of a supply of fuel. Retail prices advanced under the new wholesale rates and one of the representative companies issued the following retail prices: Egg, \$8.25; stove, \$8.50; chestnut, \$8.75, and pea, \$7.75. Shipments from the mines in no way increased and many of the dealers with heavy orders taken at the April prices were becoming anxious about their ability to fill these orders.

While the steam coals opened the month with the same weakness that characterized them in August, they began to pick up noticeably with the coming of the cool weather. As the Government price-fixing order did not include the steam sizes buckwheat was selling at this time for as much as \$3.75 a ton, although barley and rice could be bought close to circular, not having entirely recovered from the weakness manifested all summer.

Throughout the month there were persistent rumors that the Government had realized its error in fixing the pea coal price at \$4 f.o.b. mines. Many protests had been made to Washington and when the President issued a supplemental order on Sept. 30 reducing this price to \$3.40 for the white ash grade, it evoked no particular surprise. The price became effective the next day, Oct. 1.

The real event of this month, however, was the order issued the same date, Sept. 30, fixing the retail price of coal. This was to be determined under the plan promulgated by Fuel Administrator Garfield as follows:

"The retailer ascertains his retail margin in the year 1915, when more normal conditions prevailed than at present. To this he may add not to exceed 30 per cent. of that margin, which, of course, includes his profits at that time. It is provided, however, that in no case shall the gross margin added by any retail dealer exceed the retail margin added by him during July, 1917."

DISSATISFACTION COMES WITH PRICE FIXING

There was much dissatisfaction over the retail price order, as many claimed they could not do business on such a close margin, and that they should at least be allowed a gross profit of \$2.50 a ton. Under the new plan prices were also to be fixed every two weeks based upon the coal which had been purchased in the preceding two weeks.

The dealers were somewhat slow to adopt the new price schedule during the early days of October. The reduction of the wholesale price of pea coal also caused much confusion, for while the consuming public expected cheaper fuel there was really little pea coal to be had and many dealers were at times without this size for weeks.

During October the steam coals became quite strong again, with buckwheat early in the month bringing \$4, and rice and barley freely taken at \$2.85 and \$2 respectively. There was also quite a demand for culm for mixing with bituminous coal at a price from 75c. to \$1.

On Oct. 3, William Potter, former minister to Italy, was appointed state fuel administrator, and on Oct. 10 he appointed Francis A. Lewis chairman of the Philadelphia coal committee. Coincident with this appointment the retail men adopted the retail price schedule as directed by the National Administrator, although still claiming they could not do a profitable business on the margin allowed. The demand for fuel now became so strong that the dealers ordered regardless of size, simply asking that coal of any size be sent to them. Under the new system there was a great variety of prices, hardly two dealers quoting similar figures.

GOVERNMENT COMPLICATES DISTRIBUTION

Throughout the month the amount of coal received in the city was far less than the dealers demanded, although the claim was made by the companies that the tonnage delivered was much in excess of the previous year. The matter of distribution of the output was further complicated at this time by the heavy demands of the Government for domestic sizes for the various army cantonments throughout the country.

The shortage of coal began to be quite acute with the coming of November and the various coal bodies pleaded with the people to use every economy to conserve the supply. Embargoes on the various lines entering the city became more numerous and greatly interfered with coal movement. Many yards were entirely bare of supplies.

The appeal of the retail men for a flat gross margin of \$2.50 per ton was this month taken up with Washington, but the plea was denied. The dealers, however, continued to appeal for an increase. Some representative retail prices at this time were as follows: Egg, \$8.35; stove, \$8.40; nut, \$8.65, and pea, \$6.90, all per gross ton.

The steam coals kept increasing in strength as the season progressed and some individual prices were: Buckwheat, \$4 to \$4.25; rice, \$3 to \$3.25; barley, \$2 to \$2.25, as compared to company prices of \$2.80, \$2.30 and \$1.80 respectively.

In this month the mine workers despite a previous agreement demanded an advance in wages amounting to 25 to 30 per cent. Many conferences were held in Washington by the representatives of the men and the operators. The miners and operators finally reached an agreement whereby the former were to receive an average wage increase of 20 per cent., provided the Government would consent to an increase of 35c. per ton in the mines' price of coal. On Dec. 1 the President issued another order granting an increase of 35c. in the wholesale prices. The operating interests protested the order, but finally accepted the advance. In addition to ordering the advance the President in this order also took occasion to state that he would also order a reduction in prices on Apr. 1 next in conformity with the usual custom.

With the new price circular taking effect on Dec. 1

the wholesale prices of white ash coal were as follows: Broken, \$5.90; egg, \$4.80; stove, \$5.05; nut, \$5.15, and pea, \$3.75. The steam coal prices of the companies were also increased, those of one of the largest shippers being: Buckwheat, \$3.15; rice, \$2.65; boiler, \$2.45.

The coal situation became extremely critical during December, and despite the system of ordering by card there was much actual suffering. People had the money to purchase fuel but the dealers had not enough coal to meet the demand. Winter weather set in during the second week of December accompanied by numerous snow falls. In the coal region there were zero temperatures and several heavy snows. In one week on this account the production was cut almost 50 per cent. Toward the end of the month conditions became so serious that an appeal to Washington was successful to the extent that the authorities there directed that 15,000 tons a day be sent to Philadelphia, although the normal requirements were 18,000 tons. This had the effect of affording much relief.

On Dec. 21 Chairman Lewis of the local fuel committee, with the approval of State Fuel Administrator Potter, issued an order eliminating the plan of fixing the retail prices every two weeks. In its stead the dealers were allowed a gross margin of \$2.50 per ton, to date from Jan. 1, 1918. This decision was arrived at after a report had been made by the expert accountants who had gone over the books of about a dozen representative dealers. The new rule occasioned considerable protest on the part of the public and attempts were made to have it rescinded. It was figured that the new method of figuring the retail prices would allow the dealers from 35 to 50c. profit on a ton of coal. At the same time Chairman Lewis recommended to the Federal Fuel Administrator that the plan of allowing the individual shippers 75c. in excess of the company wholesale prices be withdrawn.

While there had throughout the year been some intimation made that this city had been neglected by the shippers, it has been shown by actual figures that more coal by 400,000 tons had been received up to Dec. 1 than ever before. This, however, was not sufficient to meet the increased consumption with industrial plants working 24 hours a day instead of eight, together with the needs of many thousands who came to the city during the past year.

Bituminous

The high price movement that was exhibited in bituminous coal started in the year 1916 and continued into 1917. During the first week of the year prices ranged from \$5.25 to \$6.75. Labor was restless and even after many operations had granted a bonus of 10 per cent., still further increases were asked. The car supply did not run better than 40 per cent. and was often as low as 20 per cent.

Early in the year one of the largest mining companies announced its contract price as \$3.50. There was a rush on the part of consumers to get protection, but most shippers confined their contract tonnage to not more than 50 per cent. of their output and others even lower. Concerns with low-grade coal, however, showed some anxiety to get the top price for contract fuel. Prices of spot coal softened after the first week and closed for the cheaper grades \$4.50 to \$4.75, and \$6 to \$6.25 for the best coal.

During the second month of the year there was considerable fluctuation in prices, with a downward tendency somewhat in sympathy with the contract of \$3.50. Producers showed more willingness to contract and some business on fair coals was reported closed at \$2.75, although the greater portion was taken around \$3 to \$3.50. Numerous local strikes continued throughout the mining districts, while the car supply at times was so short as to cause operations to suspend for short periods. The price range for the month was from \$4.75 to \$6.

Because of rail congestion and threatened strikes of the trainmen the fore part of March saw a sudden upturn in prices, the average advance being about \$1 a ton. Upon the settlement of the threatened railroad strike prices softened a bit. The demand continued heavy for all grades, but particularly for slack. Considerable sluggishness existed in the export trade on account of high freight rates, scarcity of bottoms and rising insurance. During the month prices ran from \$4.50 to \$6. Some contract business was reported as high as \$4.

CONCERNS ANXIOUS TO STOCK COAL

The entry of this country into war in April did not produce any appreciable change in the trade, except that the demand from concerns anxious to stock coal became stronger. Contract prices became firm around \$3.50 to \$4 and with no particular desire on the part of shippers to seek the business. Wage increases to the amount of 20 per cent. became general in the Pennsylvania districts and affected prices, although with the frequent fluctuations during the month the general average of prices was lower than in the preceding period. There seemed to be a closer grouping of all prices, hardly a dollar separating the highest from the lowest, with an average range of \$4 to \$5.25.

On account of a threatened strike among the miners prices began to move rapidly upward in May. At this time the Government through the Federal Trade Commission offered to mediate the troubles. This had a calming effect upon the situation, yet prices continued at a high level, approximating \$7 in some instances, with the lowest figure around \$5.75. The car supply continued unsatisfactory, hardly ever running higher than 40 per cent. of requirements.

The extraordinary demand for coal showed no diminution in June, although on account of the continued rail restrictions the supply hardly met the demand within 50 per cent. Prices had a tendency to move lower during the month, labor troubles having been settled through the Government. Shippers of tide coal, at the suggestion of the trade commission, held many meetings to arrange for a system of pooling tide shipments in order to expedite unloading. Prices in June ranged on an average from \$5.25 for the lowest to \$6.25 for the best grade of coal.

In July after a conference in Washington between the leading bituminous operators and the Government an agreement covering a fixed price for all bituminous coal, regardless of grade, was entered into. The prices fixed were \$3 for mine-run coal and \$3.50 for lump, with 25c. additional allowed for coal sold through commission houses. The above prices were for the net ton of 2000 lb. It was further arranged to inaugurate

the pooling system on Aug. 1. There was also considerable improvement in the car supply this month, with allotments as high as 60 per cent. The demand continued heavy, with most of the production being applied on contract business.

With the passage of the Food Control act in August, persistent rumors were afloat that a lower price for coal than the figures agreed upon in July would be fixed. While the larger operators strictly adhered to these prices, numerous sales were reported made at figures from \$1 to \$1.50 above them, and there was constant newspaper agitation for Governmental regulation. The car supply ranged from 50 per cent. to 60 per cent., with all heavy users making strong efforts to stock coal. On Aug. 21, the trade was stunned by the President's price-fixing order. The prices allowed were \$2.25 for screened coal, \$2 for mine-run and \$1.75 for slack, with 15c. allowed for brokerage on coal thus handled.

With the price of coal thus fixed practically the entire production beginning with September was applied on contracts, which had been taken at figures around \$2.75 to \$3.50. Even then contract orders were far from being filled. Throughout the month the operators spent much time preparing cost sheets and sending their representatives to Washington in an endeavor to effect a change in prices, which they claimed were ruinous.

GOVERNMENT STARTS TO ISSUE PRIORITY ORDERS

On account of the increasing congestion of rail movement in October the Government began to issue priority orders for shipments of coal to various sections of the country. It also allowed wagon mines to add 75c. a ton to the Government price of \$2. This led to the hope that there would be a general increase of prices. New demands were also made by the miners for increased wages and upon an agreement with them being reached the President revised his price order, allowing an increase of 45c. per ton. This it was still claimed by the operators was far short of affording a reasonable profit.

In November the real pressure on the coal trade began. With the car supply worse than at any previous time many small plants at times were closed for lack of fuel. At this time the Fuel Administration made a ruling that coal used exclusively for smithing purposes could be sold at the market price, which in this month ran from \$4.25 to \$5.75 per ton.

The operators never ceased their efforts to get an increased price on mine-run coal, advocating a figure of \$3 as one that admitted of a fair profit. The situation as to supply became so critical that practically all coal toward the end of the month was being shipped on priority orders. In addition regulations were issued cutting down the hours for the lighting of electric signs.

Conditions on the railroads were even worse in December. The Fuel Administration announced early in the month that all new contracts entered into must be supervised by that body. An interesting development of the month was an increase of \$1.35 allowed by the Fuel Administration in the price of bunker fuel. During the last two weeks of the year the shortage became so acute that large industrial plants were closed down for a day or two at a time, even those working on Government material. The chief trouble was the inade-

quate service on the railroads, which were badly congested by freight of all kinds.

Taken in a general way the year 1917 in Philadelphia was one of the most unsatisfactory seasons ever experienced, both from the standpoint of production and investment return. It has been estimated that for the year there would be a shortage in this city alone of a million and a quarter tons.

Ohio Trade in 1917

BY J. W. LEHMAN
Columbus, Ohio

The year 1917 in Ohio, as in other parts of the country, has been quite unusual in every respect. With the country fully launched in the world war and with every effort being made to prepare for the conflict, the coal industry was called upon to do unusual things. While it failed partially under the stress of circumstances, still on the whole the industry responded to the patriotic call of the country, and had it not been hampered by a lack of transportation would have been equal to the occasion.

It has been a strenuous year for the operator, the jobber and the retailer alike. With the public pleading for coal and with transportation congested, it was necessary for the Federal Government to adopt regulatory measures. At first these simply embraced the regulation of prices, but later national and local fuel administrators were appointed and steps taken for the regulation of distribution.

On the whole the year has been a prosperous one for the producer and distributor. In other words the operator has been able to make a fair return on his investment, the jobber because of heavy demand has been able to make rather large profits and the retailer was able to make good profits until restricted by governmental regulation and even afterward the returns were fair. Generally speaking prosperity has reigned in the coal industry in Ohio and the trade is in a better position than ever before.

Prices of course were one of the big features of the year. The year opened with an almost unprecedented demand for coal from domestic and steam users alike. This was the legacy from the preceding year. Prices at the mines ranged around \$6 in all fields. There was little distinction made between the various sizes as mine-run, lump and screenings were quoted at about the same figure. This condition was due to the fact that buyers were bidding against each other for available tonnage and price was of little consequence as long as the fuel was secured.

The \$5 to \$6 price and even higher figures prevailed until the latter part of March when the falling off in domestic demand caused a temporary slump. Prices were rapidly reduced to \$3 for mine-run and at one time lump was quoted at that figure. But the recession was only short lived and the unusual demand coupled with lack of transportation caused quotations to soar again. In June operators confronted with the serious conditions met at Washington and under the charge of Chairman Peabody of the National Defense Council agreed to a price of \$3.50 for lump and prepared sizes and \$3 for mine-run and other grades.

When these prices were fixed, apparently under the approval of the Federal Government, operators settled down to their work, believing that some permanency had been instilled into the trade. But it was only a short time that price stability prevailed and in August the price fixing decree of President Wilson was announced.

Much lower price levels were named and there was considerable complaint on the part of operators. None, however, gave up in despair but continued to push production as much as possible and immediately started work on a plan to secure higher quotations. This work resulted in success and in October advances were given and fair prices have been maintained for the remainder of the year. In October 45c. per ton was added to take care of the increased mining scale and to repay operators for other increases in the cost of production. During the latter part of the year production in Jackson, Burkholz and Palmyra districts was still further stimulated by an advance in price of \$1.40 from the previous levels.

As for car service, conditions in various parts of the state varied considerably. Up to October the Hocking Valley district and more especially that section served by the Hocking Valley R.R. had a fairly adequate car supply and production was generally good. A part of the time the car supply was approximately 100 per cent. On the other hand the Toledo & Ohio Central had fewer cars and some curtailment of production resulted. Pomeroy Bend was in fairly good shape until the latter part of the year when car service was curtailed. In Jackson there was a fairly good car supply until the

later months and the same is true of Crooksville and Cambridge.

In the eastern Ohio district the car supply was probably worse than in any other section. During the period of the Lake trade there was a considerable supply, but after the priority order was lifted the car supply was reduced to a low ebb. A large part of the available cars were used to load railroad fuel and this cut off the supply for commercial purposes.

The Lake trade was one of the active features of the year. Owing to the priority order, a large tonnage for the Northwest was secured in Ohio. Much of this coal passed through sections which were entirely without fuel and considerable ill feeling resulted. But the net result was that the Northwest was fairly well taken care of from Ohio, West Virginia and Kentucky mines.

The total loadings at the Lake ports in Ohio were larger than in any previous years. It was partly due to the pooling arrangement that such efficiency was attained in the Lake trade.

The year was marked by bad feeling between the public and the coal trade. Early in the year the operators were charged with many offenses, among which was combination to maintain high prices and as a result the public press, especially the newspapers, contained many columns of acrimonious writings. The jobber also came in for his share of criticism and the same can be said of the retailer. But the coal situation gradually became more thoroughly understood and it is now the general belief that the shortage of fuel is due almost entirely to lack of transportation facilities.

Market Conditions in Middle West in 1917

By O. M. BURNETT

Chicago, Ill.

SYNOPSIS—*A continuous coal shortage, a continuous unrest of labor, a continuous excessive demand, a continuous shortage of adequate transportation and almost continuous difficulties in the matter of price mark the past year in the Middle West coal trade. "And the end is not yet."*

THE coal trade has never, nor will likely soon again pass through a more complex and record-making period than the past 12 months. In the beginning of the year, the trade was upset as there was a big coal shortage, and the highest prices ever before heard of prevailing on all grades. This naturally made the buying public wonder when there would ever again be a normal market, when coal would be plentiful, and people would be able to purchase their needs as of old—at their own figure. Unless one has followed closely, and noticed with care the different turns of the market from time to time, it is extremely difficult to understand how so many events worthy of note could be crowded into one single year.

During the first half of 1916 there was considerable coal stored, all of which was consumed in the last half

of the same year, thus leaving the storage stocks at the beginning of 1917 practically exhausted, and throwing into the market many large steam buyers, who had rebelled at paying the market price. This added to an already feverish market a wild clamor for coal.

About this time there was started considerable agitation against both the producer and jobber because of the high price. The agitators claimed that coal was being held at various railroad terminals throughout the country, in order to bull the market. This in reality was caused by railroad congestion and was not the fault of the coal men, but a result of conditions. Summing up the situation that prevailed at the end of January, we conclude:

1. The shortage of coal had become national—no city nor state was exempt from the scarcity. Should there be a surplus in one territory, the demand in some other section of the country would immediately absorb it and cause a movement to a more distant market, unheard of heretofore, and the regular market of this territory would be shut off until such a time as it was in distressing need itself.

2. The visible supply of coal had been exhausted. The steady increase in consumption over production had completely wiped out all storage stocks, and consumers were dependent entirely on open market offerings.

This caused purchasers to bid against their competitors in open market for coal to supply their trade or keep their plants in operation. This resulted in a price of \$4 per ton in many instances on Illinois and Indiana coal, that in the same month of former years scarcely ever exceeded \$2.

3. To increase the fuel supply had now become a national ambition. This resulted in the coal people, railroad companies and all public agencies bending every effort to increase coal production, move cars faster, and unload and return equipment more promptly.

About this time it began to dawn on every one that prosperity was not temporary, and that the expansion spirit of the American people had come to stay. Admitting that the war abroad had, in a measure, reflected on the American trade expansion, there was a noticeable tendency, at every turn, toward home expansion.

February: With cold weather prevailing, the demand for coal had established a price, which was no recession from that which had prevailed during the first month of the year. With the season approaching when warmer weather was naturally expected and when prices were accustomed to take a tumble, the drift of the market was the reverse, and was only held in check by the influence of the deep thinkers among the coal men, who contended that prices were sufficiently high, and must not be allowed to get beyond control, as this would eventually result in what happened later—the Government fixing the prices. At this time the contract price had been strengthened by the danger of war, the realization of the need of large tonnages to replenish depleted stocks, and the constantly increasing current needs. At this time the constant strain that had been on the various coal-carrying railroads began to show perceptibly. It resulted in badly delayed shipments and congested yards everywhere, hence cars that ordinarily made a trip in 30 days, were now in transit double that time. The shortage of Eastern coal was at no time prior to February so marked as during this month; in fact, the trade had become reconciled to the belief that if it got coal of any character, it would have to be from the Western field. This increased an already heavy burden on the coal-producing West as well as the Western coal roads.

FLUCTUATING MARKET DURING MARCH

March: The market was up and down during the month of March. The occasion for a price slump was a more efficient car supply during the first two weeks, and warmer weather. The news, that put the market up was that the railroad brotherhood was likely to declare a strike at any time, and the market moved back to the price that had prevailed in the earlier months.

The month as a whole was one of excitement to the coal trade. That cars had become more abundant after several months of shortage, seemed to the coal men as only temporary. However cars continued plentiful for several days. The coal men had been saying all along, "Give them cars, and price would regulate itself." This prophecy had almost been realized, when the threatened strike drove prices again upward. The threat of the total absence of cars was much worse than a mere shortage, hence prices drifted quickly to higher levels.

April: America entered the world war. It was a

noticeable fact that the coal industry lost heavily of its labor during the first two years of the war abroad, not only on account of immigration to America being stopped, but by the return to their native countries of a large number of coal miners. The absence of immigration and the increased production of all classes of commodities had shortened materially all classes of labor; particularly had this affected the mining industry in the Middle West.

At this stage of industrial activity the miners became restless, and asked for an increase in their wage agreement made Apr. 1, 1916, which did not expire until Apr. 1, 1918. A new wage agreement was made that became effective Apr. 16, which gave the miners an advance of 10c. per ton for pick mining—day labor, monthly men and all other classes of labor 60c. per day, except trappers and boys who received less than \$1.57 per day. These were advanced to \$1.90 per day. This agreement established a precedent, which later resulted in another substantial advance.

THE INDUSTRY BEGINS TO MARK TIME

During the first half of April the price of coal had in most centers been circularized for the month at \$3.25 per ton at the mine for prepared sizes, fine coal ranging around \$3. This was an unusually high level for Illinois and Indiana coal at this season of the year. Contract negotiations had been at a standstill, no one seemed willing to accept the responsibility of making a contract that would later result in further negotiations with customers, and everyone seemed to be content to delay making contracts until all wage disputes were settled. The fact that there was a ready market for free coal seemed to warrant an indifference among the coal men about new obligations; thus, fewer contracts were made during this month than any previous April within recollection.

May: Early in May the Federal Trade Commission, headed by Chairman Harris, shifted its inquiry—which was started in Washington—to Chicago. Mr. Harris informed the coal men that the commission had started, under special instructions from Congress, several months before to inquire into the coal situation, but was compelled to abandon this work to look after other pressing matters. He asked the operators why prices were high, and what, in their opinion, were the future prospects, and the remedies for the then existing situation. During this time prices on all grades had advanced from \$3.25 to \$3.75 per ton for Illinois and Indiana, with a wild and unruly market prevailing. Large corporations had purchased some large producing mines; various railroads that had in former years purchased their fuel from other fields were seeking coal in large quantities. This, no doubt, reflected to a great extent on the general market conditions.

When war was declared it was realized that one of the first and prime considerations for the successful carrying on of hostilities was coal; therefore, it became necessary for the Government to have someone that was familiar with this industry to look after its interest, and F. S. Peabody of Chicago was appointed head of the sub-committee of the Council of National Defense in charge of coal, with the privilege of selecting his own committee. It was the understanding of most coal operators that this body was to be charged

with the responsibility of expediting production, arranging, and if possible, simplifying the distribution of coal for both the Government and commercial use. This committee's work was broad and efficient, and the members continued their activities until the appointment of Fuel Administrator Garfield.

June: The price for prepared sizes settled at \$3.50 per ton, with fine coal ranging 50c. lower. This indicated that the minimum for the year had been reached. June in normal years is a time used to repair mines and get properties in shape for the fall and winter campaign. Not so this year; urgent demands compelled most operators to make but few changes, and to continue the operation of their plants to the limit.

Public price agitation was now at its height. This resulted in the calling by Chairman Peabody of the Committee on Coal Production, of nearly 500 coal operators, to Washington, to discuss the seriousness of the situation and see what might be done to prevent coal from soaring to unreasonable figures during the fall and winter months.

At an open session Secretary of the Interior Franklin K. Lane, Secretary of the Navy Josephus Daniels, and J. E. Fort of the Federal Trade Commission, explained to the coal operators the fundamental necessity of coal in winning the war and appealed to them for an established reasonable price. The result of the meeting was a tentative agreement between the operators and the Government, fixing the price of bituminous coal at \$3.50 per ton at the mines. After the meeting had concluded, operators hurried back to their home, thinking that matters were settled for a while at least, only to learn that Secretary Baker thought the prices exorbitant. Thus, it will be seen the end was not yet in sight, and the solution for the big basic problem had not yet been obtained.

July: Little occurred during this month out of the ordinary. Prices remained as fixed by the Washington agreement, with operators running their mines to capacity when there was equipment available. Most of them had enough orders ahead to keep them going for an indefinite period, and were putting forth their best efforts to increase production and supply the demand; in other words, they sought to show by their action that they were trying to make good the promise made at the Washington conference. Even in July cars were still scarce with the exception of those mines loading railroad fuel, with a guarantee of a full car supply. Some signs of domestic buying for storing purposes had manifested themselves.

STRONG MOVEMENT TO LOWER PRICES

In the meantime, various public agencies were busy, trying to beat down prices, but the demand for steam coal was so great that little headway was made. Beginning July 21, the operators of Illinois were for almost a week in conference with the State Council of Defense; under ordinary circumstances, a meeting of coal operators with a local committee of one state would not be considered of much importance, but in this case a national issue had been raised, which had to do with the price of coal made by the Federal Government, through its agencies. The situation produced nothing but confusion and the conference finally adjourned.

August: The market continued to be strong with

prices steady. The passing of the Lever Food Bill by both branches of Congress and becoming a law by the signature of President Wilson, made the President the coal autocrat. The bill in question gave the President power to control food, feed and fuel, and to fix the price of coal whenever and wherever sold.

Naturally all coal operators were much interested to know how the President would view the coal problem, and some of the operators even predicted that in view of the action of various state councils, the President would soon after the passage of this bill, "show his hand."

LOWERED PRICES DISCOURAGE OPERATORS

On Aug. 21, President Wilson announced prices for bituminous coal in the various producing districts. For Illinois and Indiana, the price of prepared sizes was fixed \$2.20 per ton; mine-run \$1.95 per ton; screenings \$1.70; all at pit mouth. Although the operators accepted the decision with apparent good grace, it was noticeable that they were discouraged and disheartened. In some instances there were exceptions made and claims formulated, showing that coal could not be produced, prepared properly, and sold at the above prices, so as to give the owners any profit. Operators everywhere began the preparation of cost data to present to the Government, showing precisely what they were doing, and what it was actually costing them to do business. Following the price proclamation, Dr. H. A. Garfield was appointed Fuel Administrator by the President, with full power to act in accordance with the power granted under the Lever Law. With this appointment, the status of the Peabody committee would seem to be at an end; however, Mr. Peabody stuck for some time and rendered valuable service to Fuel Administrator Garfield.

September: The price having been fixed, there was nothing left for operators to do except produce coal, whether in so doing they made a profit or sustained a loss. Regardless of their sore disappointment, association secretaries were busily engaged with their membership, trying to have each operator prepare and present to Dr. Garfield accurate cost data, in order to show they were warrantably entitled to more money.

Cars continued to be scarce on all coal-carrying lines in the Middle West sections, with each mine operation loaded down with orders, and customers urging shipment, fearing that the price would be raised before they could get coal. Little or no headway was made on the market, and September closed, with an increased feeling that the public was face to face with a coal famine.

October: Coal miners having worked almost six months since they received an advance, had become restless, and were, in many localities, refusing to work. This discontent spread so rapidly that production fell off and appeals to many miners for patriotism had little effect; they claimed that the advance in the cost of living was far in excess of their April increase, and requested another conference with the operators. This was arranged and held in Washington, resulting in another and a more substantial increase than the one granted in April. The wage agreement was based on the premise that the operators were to be allowed an advance by the Government. On Oct. 29, President

Wilson issued his second price proclamation, granting the operators an increase of 45c. per ton, and fixing the maximum for Illinois and Indiana coal at \$2.65 for the prepared sizes, \$2.40 for mine-run, and \$2.15 for screenings, allowing the jobbers 15c. per ton over and above the operator's price. Based on the agreement previously made between the operators and miners, the miners' wage advance became effective Nov. 1.

November: As a result of the wage advance made to the miners, many operators who had made contracts in April, 1916, for a period of two years, were sorely affected because of their failure to properly protect themselves with a clause in their contracts that would permit them to advance their price to their customers. On this account, prolonged and lengthy negotiations were necessary. In some cases, price contracts have been adjusted with a compromise agreement, others are still pending. During the month of October, when discord and discontent among the miners were at their height, the production of bituminous coal fell to the lowest point it had reached, with one exception, for 12 months. The effect of the agreement, however, was soon felt, and production gradually rose until in the third week of November, it had again reached high.

December: The advent of severe winter weather saw the absolute collapse of the railroads—a contingency that the operators had steadily maintained would materialize. Before the month was half gone, with zero weather prevailing, and snow drifted from 3 to 5 ft. deep in the coal field, it was apparent to the best informed that the Government would soon be compelled to take immediate steps to remedy the situation.

While summarizing the past year in a few words, we cannot but wonder what the future has in store.

Mines in every locality worked every day that they could get cars and the miners would work—they were never without orders ahead to protect their operations with immediate disposition of their product, for from 30 to 90 days; two wage agreements were made at a period when there was supposed to be no changes; the Government is absolutely in control of prices, and may eventually operate the mines; a National Coal Association has been organized and is in good working order; we have now a National Jobbers Association, as well as retail dealers working together, and a fuel shortage unheard of heretofore.

"Where do we go from here, boys, where do we go from here?"

Colorado's Forecast for 1918

By F. W. WHITESIDE

Chief Engineer, Victor-American Fuel Co., Denver, Colo.

THE books of the year 1917 have just been closed, and we are now laying upon the trestleboard our designs of the fabric of the new year. The hovering war cloud dims our perceptions and curbs our usual confidence in our ability to do and to overcome. We know that in this war we must succeed, but by what means or in what manner this victory will be consummated we cannot with accuracy foresee.

We know that to win the victory at least four great commodities will be required—food, clothing, steel and coal; and not the least of these is coal, for each of the others is greatly dependent upon it. From this humble substance we must not only obtain heat to prepare our food; manufacture our steel; propel our transports; but from it we must also obtain material for the manufacture of explosives; drugs and medicines for our hospitals; dyestuffs for our clothing, and paints, oils and preservatives to cover and protect our products of wood and steel.

Colorado's production of coal in 1917 was 12,433,129 tons, or 1,910,944 tons greater than that of the year 1916. In 1916 the average number of days worked was 175.8 and the average number of men employed 12,598. In 1917 the average number of days worked was 204.5 and the average number of men employed 13,570.

Many of our miners and men about the mines have joined the Government service in one capacity or another. As the demand for coal will be far greater during the coming year than ever before, the operator will therefore be confronted with the problem of delivering more fuel with fewer men and a greater shortage of railroad cars. Probably the car situation will be helped by systematic Government regulation and

control, but the man problem affords but one method of solution, and that solution will be reached by the installation of additional machinery for the mining and loading of coal. That this is being done throughout the state is proved by the difficulty in obtaining mining machinery of all kinds.

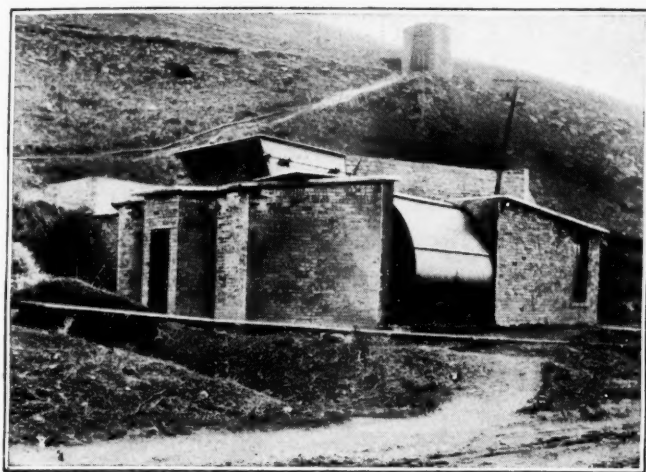
Whenever possible the mining machine is being introduced. In the northern, or lignite, field, practically all the coal is top cut, bottom cut or rib sheared with some type of punching machine. In the various other districts of bituminous and sub-bituminous coals the chain machine is now in greater demand and more widespread use than ever before. While hand mining and shooting from the solid is still carried on in some of the smaller properties, the practice of both is discouraged and is falling rapidly into disuse. A great



A COLORADO MINER'S COTTAGE

deal more attention to efficient methods of gathering, hauling, dumping and screening the coal is given in order that each man's efforts will be productive of maximum results.

The first bank of byproduct coke ovens designed to furnish smelter or steel coke to be installed in Colorado are now in course of construction by the Colorado Fuel and Iron Co. at its steel plant at Pueblo. One hundred and twenty ovens capable of carbonizing 2200 tons will



TYPE OF FAN ERECTED BY VICTOR-AMERICAN FUEL CO. NEAR TRINIDAD, COLO.

The fan shown is a 90 x 90-in. Sirocco

be ready for service about Mar. 1 of this year. From these will be derived gas for the steel plant, and among the first of the byproducts to be obtained will be tar, ammonia, benzol and toluol. To charge these ovens a washery with a daily capacity of 3000 tons is building near-by. Both the ovens and the washery are so designed and constructed that duplicate plants can be added to each. Slack for the combined plant will be hauled from Trinidad, 100 miles distant.

The Victor-American Fuel Co. is preparing to install at one of its mines a rotary dump with a capacity of dumping 12 pit cars simultaneously. This operation is expected to eliminate much of the expense of dumping and screening coal at the tippie. A 700-ft. rock tunnel has recently been completed and the grading of the 2800-ft. gravity tramline, which will handle the pit cars from the tunnel to the tippie, is now in progress.

The Victor American company has recently completed an 850-ft. tramline bridge across the Yampa River to its new tippie at Wadge mine in Routt County.

Workman's compensation has greatly assisted the state coal-mining inspector and his deputies in the work of inspection and making safe the coal properties. Comparatively little difficulty is experienced in getting the men to work steadily. Due to the car shortage, a large per cent. of the mines are unable to work six days a week, even though the men are so inclined. In one district especially the car shortage has been so great that a week sometimes goes by without the mines turning a wheel.

It is difficult to state what effect, if any, Government regulation has had, as it has not been in effect long enough to receive a thorough tryout. The first noticeable effect was when the probability of Federal regulation was announced; many dealers and consumers

thinking that the price would be very appreciably reduced, postponed turning in their orders with the result that when the matter was finally settled the operators were able to handle but a small percentage of the business, so great was the demand for coal.

The outlook for 1918 is problematical. There is every possible reason to expect the greatest demand in the history of the coal industry. There are abundant grounds for the belief that the average daily tonnage per man can and will be increased by the installation of labor-saving machinery.

There remains the railroad transportation situation with which all industries, as well as that of coal, must reckon. Colorado has no navigable waterways. She is



COLORADO MINE TIPPLE IN THE MAKING
This tippie is being erected near Canon City, Colo.

entirely dependent upon some form of land transportation. Our Uncle Sam will, without doubt, work wonders in the solution of our present and future transportation difficulties. But even the great things he has done, which he is now doing, and which in the future he proposes to do, require time; and the most significant feature about our present solution is that to accomplish the desired result whatever is done must be done quickly. The entire country is short of power and railroad equipment. If our worthy Uncle can with his mighty arm relieve this unfortunate situation, Colorado pledges herself to break all her previous records for the mining of coal.

News From the Capitol

By Paul Wooton



[Men of the coal industry who find it necessary to get to the national capital on business these days are invited to avail themselves of the facilities afforded by the Washington Bureau of "Coal Age," which is centrally located in the Metropolitan Bank Building. The bureau is in charge of Paul Wooton, who is in a position to be of material assistance to those who have business to transact with Government officials. Have your mail addressed care of "Coal Age," Room 703, Metropolitan Bank Building, Washington, D. C., while at the capital.—Editor.]

Peabody Testifies Before Senate Investigating Committee

Division of the country into producing and consuming zones; cleaning coal; a definite price schedule to extend during the war and six months thereafter, and a restriction of priority orders were the four points outlined by Francis S. Peabody on Jan. 14, before the Senate Investigating Committee, as being the most necessary steps to be taken to improve the coal situation. Members of the committee regard Mr. Peabody's testimony as having been of exceptional value. Throughout his presence on the stand he was accorded the closest attention by the members of the committee and by the audience.

In reply to direct questions, Mr. Peabody stated that he was not consulted by the Fuel Administration when it took over many of the functions which his committee on coal production was attempting to perform. Despite Mr. Peabody's offer to assist the Fuel Administration he was not consulted on matters of moment. Mr. Peabody stated that he had nothing at all to do with the conferences which resulted in the adoption of the schedule which received the approval of the President. As an incident to the questioning in this regard, Mr. Peabody stated that he would expect under present conditions to receive cost plus 15c. per ton for coal taken from his mines.

A zone system following the English plan is perfectly feasible in this country, Mr. Peabody told the committee. He stated that he had given this problem considerable thought and had consulted with transportation experts and with experienced coal men. Such a plan, he declared, will increase the country's output of coal by 20 per cent. The plan divides the country into 30 districts. No coal is to be sent out of one zone into another without a license from the Fuel Administration, according to the Peabody plan. This

license will have to be resorted to in some instances, Mr. Peabody pointed out, using as an example the necessity of having a good coking coal at byproduct ovens.

The necessity of clean coal was emphasized strongly by Mr. Peabody. Next to the zoning of the country, he regarded it as being most important. A statement compiled by the Bureau of Mines was introduced into the record which showed that, in some cases, coal now being shipped contains as much as 37 per cent. ash. A long list of analyses brought out clearly that there had been a very large increase in the amount of refuse being shipped in coal. Mr. Peabody called attention to the tens of thousands of cars which are being used in this time of stress to transport entirely worthless material, to say nothing of the losses to the consumers. So great is the quantity of refuse that is being shipped with coal that Mr. Peabody believes it will more than offset any increased tonnage which may have been shown since September.

Third in the point of importance Mr. Peabody placed the necessity for a definite statement from the Government as to the length of time the price schedule will be maintained. That prices should be subject to change without notice, as they are at present, Mr. Peabody asserted to be a "death blow" to production. With the existing uncertainties as to price and to contracts, there is such hesitancy on the part of capital to improve existing mines and to open new ones as to constitute an element of the gravest danger in the situation, he said. If the price schedule should be made permanent for the period of the war and six months thereafter, and allowance be made for any increase in wages, great stimulus would be given coal production. Mr. Peabody declared that he was very well satisfied personally with the Government's prices, but that any price schedule to be entirely fair should be based on the thickness of the seam.

Several times, when questions were asked, which seemed to imply a criticism of the Fuel Administration, Mr. Peabody would bring out his opinion that little good could come from criticism. He expressed his conviction that this is the time for constructive suggestion, rather than a consideration of that which has "gone over the dam." Pressed by the Senators, however, Mr. Peabody stated that the necessity of cleaning coal had been brought by him to the attention of the Fuel Administration shortly after it began work, but that no action was taken and that he rarely received any replies to his communications other than an acknowledgment of the receipt of his letter. The ruling

with regard to new mines also was criticized as was the effort to go into intricate cost accounting when the country is at war. He advocated the use of the broad ax and the tearing away from the detail and red tape which is hampering production and distribution.

The use of the priority order in a way which will do justice to all, Mr. Peabody thinks, can be brought about only by its application after it has been passed upon by expert railroad men and by those who would be familiar with every ramification of its influence. The too frequent and oftentimes short-sighted use of priority orders has been one of the most disturbing elements of the present situation, it was brought out in Mr. Peabody's testimony.

Mr. Peabody expressed his disapproval of the pooling plan authorized by the Federal Trade Commission. He said that he and Mr. Colver had argued in support of their respective views in this regard for two months, but that Mr. Colver was unable to answer his question as to what he would do when supply caught up with demand and the pool began to overflow.

Mr. Peabody criticized the inequalities of prices in the Northwest and stated that this section of the country is being allowed to drain Illinois and Indiana of coal.

Franklin K. Lane, the Secretary of the Interior, also appeared before the committee. His testimony was confined largely to an explanation of his participation in the adoption of the Peabody schedule. He defended the action taken by the operators at that time but did not take advantage of an opportunity offered him by Senator Lodge to criticize the action of Secretary of War Baker in undoing the operator's action by making public a letter criticizing the schedule. Secretary Baker's letter, however, was introduced into the record.

Weekly Production Statistics

Coal production during the week ended Jan. 5 exceeded all expectations when 9,236,000 tons was mined. This is an increase of 3.6 per cent. over the production of the preceding week. Beehive coke to the extent of 515,000 tons was produced during the week ended Jan. 5. Forwardings of anthracite coal were 27,517 cars, as compared with 36,083 cars during the preceding week. The anthracite production for 1917 is estimated as having been 77,133,305 tons, as compared with a total production of 67,376,364 tons, which made 1917 the banner year in the history of the anthracite industry.

Observance of holidays during Christmas week made labor shortage a much more prominent limiting factor in coal production than has been the case in many weeks. Reports to the Geological Survey show that labor shortage and strikes were responsible for loss of production to the extent of 10.2 per cent. This compares with 2.6 per cent. for the week ended Dec. 22. During the week ended Dec. 29, the losses from car shortage fell from 24.7 per cent. to 8.8 per cent. As fewer miners were at work during that week, the railroads had less difficulty in supplying the needed cars.

Commenting on the general situation, during Christmas week, the report says:

From all states except southwest Virginia, Alabama, Iowa, Arkansas and West Virginia Panhandle improved working conditions were reported. In each of these states an increase in losses due to labor shortage was responsible

for the decline in output. In southwestern Virginia and Alabama the ratio of tonnage produced to capacity was the lowest on record since the weekly bulletins were begun; losses attributed to labor shortage in southwest Virginia were 24.1 per cent. and in Alabama 23.6 per cent.

A general improvement in working conditions was reported from Illinois, Indiana, Ohio and Pennsylvania. West Virginia, both high- and low-volatile, which had suffered from the bad weather longer than other districts, showed a marked improvement during Christmas week. The most striking improvement was reported from eastern Kentucky. Losses in the Hazard field dropped from 63.1 to 19.3 per cent. of the full-time capacity; and in northeastern Kentucky from 62.5 to 32.0 per cent.

Convinced that its weekly statistics on coal, coke and anthracite production are helpful to the industry, the Geological Survey has extended its work to include byproduct coke. These figures as well will be compiled by C. E. Leshner, the geologist in charge of coal statistics. The first report, which covers "a seven-day period in late December," shows production to have been 384,207 tons, which is found to have been 80.4 per cent. of the full-time capacity of the country's ovens. Practically all the loss was due to inability to obtain coal.

Fuel Shortage in the United States Not Due to Exports

During the first eleven months of 1917 the United States exported 19,647,671 tons of bituminous coal. This compares with 17,740,391 tons during the corresponding period of 1916. These figures, which are compiled from the official returns to the Department of Commerce, set at rest the widely circulated report that an important factor in the fuel shortage in the United States this winter is due to increased exports. The greater part of the coal exported went to Canada, which country received from us 14,912,698 tons. The report had it that specially large quantities had gone to Italy. This is not the case, as the forwardings to that country for the entire eleven months were only 553,423 tons. This is one-third of the exports during the same period of 1916. Exports of coke, as well, showed no important increases during 1917 over those of the preceding year.

Exports of coal during 1918 probably will be somewhat less than were those of the year just closed, as the War Trade Board expects to be very strict in the application of its power to grant licenses for coal. It is admitted, however, that exports to Canada, which constitute the bulk of this country's forwardings, cannot be curtailed greatly.

United States Fuel Administration Now Has Control of Oil Matters

United States Fuel Administrator Harry A. Garfield on Jan. 10 announced the appointment of M. L. Requa, of California, to handle oil matters for the United States Fuel Administration. Mr. Requa will have full charge of the activities of the Fuel Administration in connection with oil under the direction of Fuel Administrator Garfield.

Since the organization of the United States Food Administration, Mr. Requa has been an assistant to Food Administrator Herbert Hoover. His transfer has

been arranged with Mr. Hoover, who has consented to the change because of Mr. Requa's qualifications for his new position. Mr. Requa leaves the Food Administration only because it is believed his services are of more value to the Government in connection with oil.

Mr. Requa is a consulting engineer to the Bureau of Mines on Petroleum; is vice president of the American Institute of Mining Engineers, and is a member of the Council of the Mining and Metallurgical Society of America. He has been connected at various times with the oil industry in California.

The first activity of the new Oil Division of the Fuel Administration will be to undertake an investigation of the entire petroleum situation and to recommend to Dr. Garfield such action as may be necessary to handle petroleum matters.

Three More District Representatives Appointed by Garfield

Additional district representatives have been announced as follows by the Fuel Administration: W. B. McKinney, Columbus, Ohio, for the Crooksville, Hocking, Jackson, Pomeroy and Ironton coal fields of southern Ohio and in Mason County, West Virginia; C. G. Hall, Terre Haute, Ind., for all the Indiana coal fields; E. A. Holmes, Birmingham, Ala., the Alabama coal fields. Accompanying this announcement was the following, from the Fuel Administration: "Inadvertently district representatives in the mine fields have heretofore been called deputy distributors. Please note the change in designation."

No Radical Steps Contemplated as Regards Distribution of Coal

A manager of coal distribution to have direct supervision over the representatives of the Fuel Administration in the various producing districts will be named by the Fuel Administrator in the near future. It is known that every effort is being made to secure for this highly important place the most capable coal operator available. This step is being taken as a part of the reorganization of the distribution portion of the Fuel Administration. Officials at the Fuel Administration are complimentary in their references to the help they are receiving from the operators in the decentralization of distribution. There is much controversy over details, but a plan which, it is believed, will be generally acceptable is being worked out. Many are confused by the idea that a zone will be laid out which will limit the markets for coal. The plan under consideration does not, in itself, contemplate such action. The idea is to get the machinery set up and to appoint representatives in the different districts and then decide if it is advisable to limit markets. Before Pocahontas coal is cut off from Illinois and Indiana or eastern Kentucky coal from Michigan, or Kanawha coal cut off from New England the Fuel Administration expects to be sure that such a step is for the best. It can be stated on the best of authority that no radical step in the matter of distribution is contemplated.

Government Calls for Heavy Machines

We are asked to transmit to our readers the fact that the United States Government is in immediate need of large machine tools—60 x 60 x 20-ft., 48 x 48 x 20-ft. and 36 x 36 x 14-ft. planing machines, Nos. 4 and 5 plain milling machines and vertical milling machines of like number, 30 in. by 20 ft. and 36 in. by 20 ft. engine lathes, 4-ft. and 5-ft. radial drilling machines, 10-ft. and 5-ft. vertical boring mills; 6-in. floor type, horizontal boring and milling machines and 4-in. milling machines of the same type.

It is hardly likely that ordinary coal-mine shops have these large tools, but many of the coal-mining officials have friends and acquaintances to whom they can make this imperative need of the Government known. Those who can supply these machines should write or wire at once to the Machine Tool Section of the War Industries Board, Council of National Defense, Washington, D. C.

Brief Washington Notes

Chicago consumers have been able to make such a good case that the Fuel Administrator has issued orders to operators in the Pocahontas field which will result in a considerable movement of low volatile coal to the Illinois metropolis.

With authority to divert shipments of coal from the original consignees, the Fuel Administrator has appointed a number of representatives of the Fuel Administration to cooperate with the railroad authorities in clearing up congestion. This step was taken at the request of the Director General of Railways.

P. B. Noyes, who is in charge of the conservation division of the Fuel Administration, has been sent to New York to cooperate with Albert H. Wiggin, the State Fuel Administrator, in the curtailment of coal supply to certain classes of consumers. This action has been made necessary by congested terminals and transfers in the vicinity of New York.

Coal supply in Ohio and Michigan is such that on Jan. 12 the Fuel Administration instructed operators in a number of districts to ship all coal possible to these states. The districts affected by the order are Pittsburgh, Fairmont, Kanawha, Kenova, Thacker, eastern Kentucky, Jellico and Ohio. The operators were asked to suspend shipments to other points for ten days in order to divert into the states mentioned as large volume of coal as possible.

No fuel of any sort is to be used between 7 a.m. Saturday and 7 a.m. Monday of each week by manufacturers engaged in the making of box board, paper board, straw board, binder board, tag board and other boards made from waste paper or rags. An order to this effect has been issued by the Fuel Administrator after a majority of the manufacturers engaged in the making of these articles agreed to abide by it. This limitation will result in a saving of 780,000 tons of coal per year.



EDITORIALS

Delays in Postal Deliveries

"**B**ETTER late than never," seems to have been adopted as a maxim by the Post-Office Department in the delivery of mail of all classes. When we pause for a moment to consider that train schedules have been curtailed, that thousands of postal clerks are now in military service, that severe weather has caused numerous tie-ups—we can readily see why copies of *Coal Age* are slow in reaching our subscribers. We have received many complaints on this score. Taking up the matter with the postal authorities, we were assured that every effort is being made to bring the service back to normal.

Coal Age itself is also suffering considerable inconvenience from the breakdown of the postal service. Articles which were mailed "special delivery," and in ample time to reach us for this annual review number, have not yet been received, necessitating the procuring of much data by means of the telegraph.

Patriotism demands that we exercise a little patience at the present time in matters such as these. The necessary readjustments in service will soon be made, and new clerks are being trained to take the places of the men who have enlisted. We are helping all we can to deliver the paper on time.

To Every District Its Troubles

IF THE coal industry had but one head, that the public might behead it; if it had but one district with uniform conditions, so that the public might know just what those conditions were and who was to blame, all might be well. But, as it is, we are faced with an infinite complexity.

There is the anthracite region—with a sufficiency or nearly a sufficiency of cars—working steadily and unable to supply demands because of shortage of mines and miners. There is the generality of bituminous mines, desperately short of cars, run infrequently, with enough miners to supply the demand if they were all working steadily or even if they were operating with a little more steadiness than at present.

But no one would believe that here in America was a field with too many mines, too many cars and too many men, looking for orders for the coal it is producing. Yet there is such a field, in witness of which read this letter from D. S. Hanley, general manager of the Carbon Coal and Clay Co., Bayne, Wash., under date Dec. 21, 1917:

In view of the serious coal situation that must exist in the East according to press reports and the articles appearing in your publication, it would be interesting to you to know that in the State of Washington there are several mines, particularly those located west of the Cascade Mountains, that are suffering acutely from lack of business.

The mine of the Carbon Coal and Clay Co., with a capacity of approximately 10,000 tons per month, has been able to run but two or three days per week since the latter part of November because there has been no demand for its

product. This condition is not peculiar to us, for other mines in this vicinity have been similarly affected.

The question has been taken up with the Federal fuel administrator for this state, and I think he is doing everything possible to urge the industrial and domestic consumers to take advantage of the present lull in the market by stocking coal. He has also discussed the question with the Federal fuel administrators of adjoining states, where a coal shortage exists, suggesting that they take advantage of our capacity to supply coal, but so far there have been no definite results.

I think it can safely be stated that the mines referred to west of the Cascade Mountains can, if they have the market, produce and ship from 40,000 to 50,000 tons of coal per month more than they are now producing and shipping. The railroads have been doing good work in the matter of furnishing empty equipment, and even when the demand for coal was good there were but two or three days when the production of the mines was curtailed for lack of cars.

Apparently in eastern Washington and northern Idaho a preference is shown for the Wyoming and Utah coals. But it is now expected that the Government will compel the people of the state to use the coal of the west Washington mines, the coal of Utah and Wyoming being diverted to Montana and Oregon, thus keeping everybody at work and shortening railroad hauls.

Some of the coal of King County is rated as sub-bituminous. The moisture content of the field varies considerably, but sometimes exceeds 16 per cent. The ash also is occasionally quite high. The Bayne mine, from what we can learn, has a far better analysis both as to moisture and ash than many of the King County operations, and it is rated as bituminous coal. But whatever the coal is, without doubt Tacoma and Seattle should seek its supplies from the mines in the King County field because it is near-by. Seattle itself is located in that county, and Tacoma is just barely outside its line. In these days of the need for short hauls the King County field should be given every consideration.

Cutting Our Suit To Fit the Cloth

SO far we, as a nation, have been principally busy in this war making requisitions like some young superintendent just on the job. We have figured on all we wanted without forming a real budget. We added the totals, it is true. They looked alarming, but we did not let it trouble us seriously. It was unpatriotic to question whether we could raise the money or secure the workers or find the material.

There was no head to direct and no brain to steer this big business proposition. But after all war is a business, a big business, and something more than enthusiasm is needed. We cannot requisition without limit, and so we must be careful to evaluate our abilities and our needs, being prepared to spend liberally on what we need most and to be niggardly in spending even nationally—and certainly personally—in those things that we need but little.

As it is, every one who has a department that can aid in the war looks toward getting the utmost expan-

sion of that department in the least possible time. There is no limit but the sky. Suppose a mining operation had a superintendent of motive power who had a morbid fear of being found with a shortage of locomotives and cars and, on the other hand, had an utter indifference to the possibility that it might be found that he had bought more equipment than the mine would ever accommodate or the men would ever be found to need.

Suppose, at the same mine, we had a power-house superintendent who ordered so generously that he could never by any eventuality be called upon later to enlarge his plant, and so on. If then there were only these energies for disbursement and no energies provided for control, there would be no limit to the purchasing till the property went into the hands of the sheriff. The analogy to the conduct of our affairs in the present war is obvious and need not be pointed out.

Our net income has been about \$2,000,000,000; probably we can raise it by economy to \$15,000,000,000 and later perhaps to \$20,000,000,000. Of course, out of this we have to make some loans. Let us keep them down to the irreducible minimum. The less we lend to the British and French, the more we have to spend on ourselves. The money we lend to foreign governments we make them pay interest on. For what we spend on our own preparation, we collect neither principal nor usury. We put both capital and interest into the war without charge to the Allies.

Our loans are not matters to be boastful of. It is to be regretted that we have to put our tools into the hands of other people that they may do the work that we, ourselves, are spoiling to do and don't do solely because we, ourselves, just at present can't do it. The Allies have to borrow money and pay us interest only because we are not ready to put it into the fight ourselves. This is a thought from which we cannot draw much encouragement.

However, it is true that loans must be made and the amount we have to spend on our preparation will be by that amount diminished. Having arrived at that amount, whatever it may be, let us inquire what we want most for our own preparation. Perhaps the most vital, though not by any means the largest, of our needs is an appropriation for certain purely local improvements.

Do not let us forget that Great Britain has spent much money on herself since she went to war—building homes in and around munition centers, enlarging and modernizing terminal facilities and providing conveniences for her large training camps. And we may have to do the same. We may have to put the railroads right before we go far along with the war. Whatever must be expended to make them adequate must be provided.

That is one reason why government ownership is not so much to be regretted. It changes our viewpoint. It is no longer unpatriotic or un-Ally, if we may coin a word, to spend money on the railroads. One, without being labeled pacifist and profiteer, can now venture boldly to say out loud that expenditures on railroads with a view to military and proper civilian needs during the war are more important than expenditure on munitions.

The shipping question is also a paramount problem not to be shelved for anything which is less important

even if more distinctively warlike. Then comes the army, the aviation service and the mosquito fleet in the navy. The United States Navy has proved one of the departments of which we have most to be proud. But there is a risk that we shall lay too much stress upon it. We are quite likely not to follow the lead of our Allies who regard the increase in the number of large units in the navy as of inferior importance to the increase of the mercantile marine.

We need a level-headed man to lead in the war preparation. We do not want every man to think that if his department is extended to the beggaring of other departments the war will be won. There must be no crowding for first place. Rather there must be coördination. Sometimes a man advances his own interests and the interests of others best when he doesn't try to do it all himself or to put the interests of his own work first, but pats his neighbor on the back and gives him encouragement.

The Order Shutting Down Industries

IT IS probable that the Jan. 16 order of the Fuel Administrator, shutting down business for five days and closing up industries on every Monday until Mar. 25, is not only the most drastic, but the most arbitrary ruling ever issued by any authority in the United States. If it were not stated that this order came after a White House conference, we would feel certain of its revocation.

The pity of it all is the shame it casts upon the Nation. Here are we, a people noted for our industry and energy and having within our boundaries coal mines that this year will produce six hundred and thirty-three million tons of coal, or practically one-half the world's fuel output, yet we must do a thing that no other nation has had to do, not even Germany, shut off from the world and having suffered nearly four years of war.

It is difficult for those of us who do not know all the facts of the situation to pass judgment. However, we find it hard to agree that this ruling is a wise one. The whole question is one of transportation. The mines can produce the coal. Even today collieries in many regions are working only from one-half to three-fourths full time. Is it any wonder that the mine owners experience difficulty in keeping a sufficient supply of labor at hand when the men are obliged to be idle so many days each month!

We know now that a great deal more coal could have been hauled during recent months with the same number of cars if those in charge of the railroads had only compelled the immediate unloading and return of cars. This problem was not met in the stern manner that was necessary. It is also a fact that the Government should have exercised certain discriminations in recruiting and drafting miners. Now the entire industrial life of America is asked to pay the price for the mistakes of a few individuals.

We earnestly hope that the closing-down order of the Fuel Administrator is quickly revoked. We do not feel that such a move is necessary to relieve the present distressful situation. Nothing could be done to more greatly hearten the German people and to discourage our allies.

THE LABOR SITUATION

General Labor Review

The three great events of the week are the demand on the part of the Fuel Administrator that the mine operators in Alabama accept the scale adjustment already approved by the mine workers; the meeting of the United Mine Workers twenty-sixth consecutive and third biennial convention in Indianapolis, Ind., and the citation on June 14 of Frank J. Hayes, the president of the United Mine Workers and nine other officials of the union, to show cause why they should not be declared in contempt for violating an injunction restraining representatives from attempting to organize employees of the Hitchman Coal and Coke Co., of Wheeling, W. Va. The officials are to appear in court to answer these charges at noon, Mar. 4.

With regard to the first item it must be acknowledged that the operators will be well advised to accept the mandate of the Fuel Administration, which was not really unfair. They can battle out the question as to who are and who are not bona-fide employees of their respective companies when they apply for work. This is not the time for resisting any reasonable solution of a pressing labor problem.

As for the Hitchman case, we hope that some way may be found to quiet matters down, at least till after the war. The decision of the Supreme Court came as a great surprise. Few, indeed, expected that so severe a blow would be administered to the practices of organized labor.

The long report on the biennial conference appearing in other columns of this issue makes it unnecessary to discuss that meeting at length. Everyone will surely regret to read in the statement of President Hayes that he intends to go on with the work of progressive unionization during the war. He says: "We intend to carry on these campaigns of education and organization until every coal field in the country is thoroughly organized." He discusses the Colorado Coal Co. case against the union and says it was "a far-fetched inference" to hold that the controversy between the plaintiffs and the miners of Hartford "must have grown out of a gigantic conspiracy to interfere with the production and commerce of nonunion coal." He adds: "It was shown by the constitution of the United Mine Workers of America that the strike was outside of the jurisdiction of the international organization, its officers, and that the executive board had nothing whatever to do with it."

Mr. Hayes in his speech recommended that in the order of business of every local union the following inquiry be incorporated: "Are there any members present who desire to become citizens of the United States?" Mr. Hayes made an excellent address, showing that he is a worthy successor of the long line of competent and intelligent men who have preceded him.

On Dec. 1, 1915, the union had \$120,441.63; a year later it had increased its balance to \$417,018.91. On Dec. 1, 1917, the union's funds had dropped again to \$209,747.55, barely 50c. per member. The income during the year has been \$1,759,727.34 and the expenditures \$1,966,998.70. The aid to District No. 23, western Kentucky, was \$120,500. In Alabama \$108,400 had been expended up to Dec. 1. To Colorado, union aid to the extent of \$66,850 was extended. Both bituminous districts in Pennsylvania received aid, the central Pennsylvania district being helped to the extent of \$23,000 and the western Pennsylvania district to the tune of \$58,000. But the lion's share of all went to eastern Kentucky and Tennessee. That district received \$252,125 in aid of its protracted strike. The income of the *Journal* for the past year was \$28,143.93 and the expenditure was \$66,014.40. In the two years from Dec. 1, 1915,

to Dec. 1, 1917, the loss on the publication of the *Journal* was \$103,253.05. There has been an improvement in the last year, but still the balance sheet is unfavorable.

There have been a few small strikes, among them being a strip-pit in Pittsburg, Kan., operated by Smith, Scott & White Co., which went on strike Jan. 4. Of course, it is not termed a strike. To so announce it would be to invoke the penalty. Men do not strike any more, they quit work nowadays.

Alabama Operators Must Accept Fuel Administration's Decision

On Jan. 12, H. A. Garfield, the Fuel Administrator, wired the Alabama Coal Operators' Association that they must accept the Fuel Administration's decision, as approved by the United Mine Workers of America in Alabama at their meeting, held Dec. 20 and 21 of last year. At this meeting 269 delegates were in attendance. They represent 97 local unions.

By practically unanimous vote they accepted the proposition which was "recommended to them by the Fuel Administrator and which the same administrator now commands the operators to accept." The attitude is quite typical of a standing which is not quite equal. Mine workers *may*, mine operators *must*!

The contract presented the mine workers by Rembrandt Peale as representing the Fuel Administration had the following provisions:

1. Recognition of right of employees to join any union, labor organization or society without discrimination in distribution of work, providing that nothing is done to disturb the relations of employer and employee by intimidation or coercion and providing that every man is allowed by the employees perfect freedom to join or to refrain from joining the union at his pleasure and providing also that no employee shall use the company's time for any other purpose than that for which he is paid nor may he "interfere with the operation of the mine or knowingly do that which will reduce the output."

2. Reemployment upon application of all men discharged because of affiliation with the union, excluding, however, men who have made unlawful threats or committed unlawful acts, unless the employer is satisfied that the acts will not be again committed by the applicant. Disputes under this clause to be submitted to the umpire.

3. Right of employees to meet shall not be interfered with or abridged.

4. Committees of workmen, selected at meetings, called for the purpose not more frequently than once every three months, shall be received by the managers and shall be privileged to present the grievances of the employees, which shall not be waived, rejected or postponed as far as any matter is concerned covered by this agreement. If no agreement is reached with the superintendent, the grievances are to be referred to the highest official of the company available, who shall pass on the question within 10 days. If not then adjusted satisfactorily to the committee, they may appeal to the permanent umpire, whose decision shall be binding and made within 30 days. Either or both parties may present their case by duly authorized representatives. The mine committee shall consist of three mine workers from each mine, selected by the employees at the mine after written notice, stating the place and time of meeting, has been posted at the tipples or tipples at least three days prior to the date of such meeting and before any later election meeting.

5. Mine committees shall only attempt to adjust disputes which the miner or miners affected have endeavored to adjust without success. These grievances shall not be discussed during working hours. All parties involved must continue at work while the investigation and adjustment are being made. Only rules and regulations in conflict with those in this contract shall be changed by this agreement.

6. A checkweighman selected as required by law from among the mine workers employed at the mine may be placed on each tippie at the expense of the miners. His duties shall be those prescribed by the state law. If a suitable man cannot be found, an outsider may be employed with the mutual consent of the operator and miners. An election shall be held at the mouth of the mine or tippie after three days' notice, posted at the mouth of the mine or tippie, which elections shall be free from the interference of the company's officers or agents. The operator at each mine, when so requested by a majority of the mine workers, shall collect the wages of the checkweighman in such manner as is prescribed by the men so long as same is not in conflict with the laws of the state.

7. In view of the fact that a large proportion of the coal produced in Alabama is sold under contracts that do not expire until July 1, 1918, the consideration of the following matters, namely, the uniform readjustment of tonnage and yardage rates, all day labor and deadwork rates, the increase or decrease of the existing wage rates, it is agreed shall be postponed until July 1, 1918.

8. The umpire herein provided for shall be appointed by the Judge for the United States District Court for the Northern District of Alabama, from a list of six names, three of which shall be submitted by the coal operators and three by the mine workers, said appointment to be subject to review by the United States Fuel Administrator on appeal by either the mine workers or the coal operators, and the United States Fuel Administrator shall have the power to disapprove said appointment, in which event six names, which may include the names originally filed, except the one whose appointment has been rejected, shall be submitted as herein provided for in the first instance to the Federal judge, who shall make another appointment, and which appointment so made by him shall be subject to review by the United States Fuel Administrator, as herein provided.

In the event of a vacancy the Federal judge shall appoint a new umpire under the same procedure herein provided for. The umpire shall serve during the term of this understanding. The umpire so appointed shall receive suitable compensation, to be agreed upon, one-half to be paid by the coal operators and one-half by the mine workers.

9. This understanding shall be in effect and binding upon the coal operators and mine workers during the continuation of the war, and not to exceed two years from Apr. 1, 1918.

10. The semi-monthly pay day shall be established at all mines.

11. The rules of the company shall provide for a square turn in the distribution of cars. The operator, and his superintendent and his mine foreman shall be respected in the management of the mines and the direction of the working force. The authority to hire or discharge shall be vested in the mine superintendent or mine foreman.

12. The United States Fuel Administrator urges upon the operators and mine workers of Alabama that the question of the hours of labor that constitute the day's work be settled and agreed upon in the terms set forth in the operators' public statement of Dec. 6, 1917, published Dec. 10, 1917, as follows:

"The operators are willing to put in effect in Alabama, for the duration of the war, if you desire it done, the working hours now in force in the Tennessee-Kentucky field; that is, employees shall be at their working places at 7:30 a.m., and shooting time in the mines shall be 4 p.m., with not more than thirty minutes to be consumed by employees in lunch or dinner hour. Day labor necessary for the transporting and dumping of coal that may be in transit at quitting time shall continue working until such coal is loaded on railroad cars, it being understood that no more than one-half hour may be required for this work, which

will be performed by the necessary day labor involved without additional compensation."

13. It is expected that a penalty provision satisfactory in its terms to the United States Fuel Administration shall become a part of your common understanding.

14. This understanding is made subject to the ratification of the coal operators of Alabama, or those who indicate their acceptance by their signatures, on the one part, and by the mine workers of Alabama on the other part, due notice of which shall be served upon the United States Fuel Administrator.

Mine Workers Convention Assembles

On Tuesday, Jan. 15, the convention of the United Mine Workers of America actually managed to meet at Indianapolis, Ind. For a while it seemed likely there would be a delay in the assembling of the delegates and that the date of the session would have to be advanced several days. But that did not prove necessary.

The committeemen, who, as a rule, have their reports practically completed two days prior to the convention, were on Sunday still somewhere en route. John L. Lewis, the vice president, and Frank Farrington, the president of the mine workers of Illinois and chairman of the constitution committee, were snowbound at Springfield, Ill., the Big Four having cancelled all schedules between Indianapolis and Illinois points.

John P. White, who came from Washington, arriving on Sunday, was 21 hours late. He announced that Harry A. Garfield, the Fuel Administrator, would be unable to be present to address the convention as planned. It was, however, pressure of business and not the snow which prevented the consummation of his promised visit. At least, the snow was not the direct cause except as it affected the pressure of his business. President Frank J. Hayes was confined to a local hotel nursing a bad case of "La Grippe."

But all these unfortunate difficulties were, fortunately, removed, and the mine workers met as planned. Patriotism was the keynote of the meeting. Governor James P. Goodrich and the representative of the Mayor of Indianapolis made speeches, as did also several labor leaders. All of them paid tribute to the mine workers for their work in meeting the demand for coal as far as opportunity permitted. The report of the credential committee was held pending the arrival of belated delegates.

Meanwhile the reports of the officers of the organization—Frank J. Hayes, president; William Green, secretary-treasurer, and John L. Lewis, vice president—were duly read, all being well received. Alex. Howat, however, is still continuing his buttonhole campaign for the defeat of the penalty clause in the Washington agreement. He has but a small following outside his own delegation.

It seems certain that the Washington agreement will be overwhelmingly ratified. No amendments will be tolerated, the stand being taken that the agreement must be ratified as negotiated or rejected entirely. The agreement cannot be amended. The opposition which might conceivably muster enough force to register a vote against some feature in the new contract could not possibly be strong enough to condemn it as a whole.

It is likely that a defense fund of 50c. per month will be levied to prepare the union for a defense of its position as soon as the war is over. There will also be, in all probability, an increased per capita tax of 50c. per month. The measure will certainly be offered for vote and will probably be carried.

It looks as if Indianapolis will unquestionably lose the convention for the year 1920. Cleveland appears the most likely place to be chosen, though Scranton and Kansas City are advocated by the delegations from the vicinity of those cities.

John Walker has not yet arrived, but his friends say he will be a rival for the position of president. Thomas Kennedy, of Hazelton, Penn., president of district No. 7, is mentioned as candidate for vice president in place of John



FRANK J. HAYES
President, United Mine Workers

JOHN J. LEWIS
Vice president, United Mine Workers

WILLIAM GREEN
Secretary-treasurer, United Mine Workers

L. Lewis. Alex Howat, who is president of district No. 14, claims that John Walker will support his policies, but Walker's friends hardly regard that prospect as likely to assist their candidate and they are declaring that Walker is a safe man who will steer clear of the rocks. Meanwhile he occupies an inconspicuous place among the delegates and awaits the scale fight.

The losses incurred in the running of the *United Mine Workers' Journal* are likely to create a hot test fight. An outsider might suggest that the *Journal* would be a better seller if it were much less radical. It misrepresents the sentiments of the average mine worker, who does not believe that the mine workers are a lot of tin angels or the operators a crowd of hooved devils. The paper is improving. It is furnishing more news and less diatribe, but it has a past to outlive and that will take some time. No one today wants a rabidly one-sided uncharitable sheet. Unfair journals have to be subsidized by someone. The *United Mine Workers' Journal* has been subsidized by the union. It is not necessary that it should be so if it will give the news in all its completeness and fairness.

The officials from most districts are going to make a determined fight to eliminate foreign languages from the *Journal*. "American English for all" is their slogan. They want to aid in the establishment of schools and are prepared to assist the Americanization committee in conducting a nation-wide campaign for 100 per cent. citizenship.

John P. White addressed the convention, outlining the aims and the plan of operation of the Federal Fuel Administration. He declared that officials of the United Mine Workers had assured President Wilson that the agreement they had made on behalf of the mine workers would be approved. He felt that the mine workers' organization was bound by that pledge of honor. The hour of debate ceases, he declared, when the Government declares war. The decision of the Government becomes the patriotic duty of every loyal citizen.

He declared he would defend the agreement against all comers. The penalty clause might be criticized, but all it did to the mine worker was to take away from the local union the right to do wrong by declaring local and unjustifiable strikes. Mr. White reviewed his administration, commended Doctor Garfield and served notice that he was going to the bat with those who would destroy the high standing in public won by the mine workers. Secretary of Labor Wilson wired his regrets that he could not be present, owing to pressure of business. He urged the mine workers to remain loyal and outlined the reasons for the war, pre-

dicting that victory would be assured by the unswerving devotion of the workers.

Dr. H. A. Garfield sent the following message: "I appreciate sincerely the loyal response made by mine workers to appeals for coöperation with the Government in the present emergency. The steady decrease in the tonnage lost by labor shortage since August is eloquent testimony to this coöperation. I have ventured to state on many occasions that both mine workers and operators have displayed a laudable purpose as American citizens to put aside differences in the present emergency and to unite during the war in a common purpose to increase the production of coal. The successful prosecution of the war depends as much on the men in the mines as on the men in trenches. I regret I cannot be with you."

Dr. Garfield added that John P. White would speak for the Fuel Administration. After the speeches and the messages just reported were read the convention adjourned to await the reports of the committees for the day.

Walker and Howat are said to be in a deal to fight for the reopening of the contract on Apr. 1. They are said to entertain no hopes that the mine workers will secure an additional increase at that date, but they hope to force the Administration into a conference into which they could not enter without certainty of failure. Then the leaders having failed, it will be possible to circularize the membership alleging that if Walker's and Howat's advice had been taken an increase of from 20 to 50 per cent. could have been secured. Continuous propaganda would follow in the hope that when the election came in December, 1918, it would find Walker and Howat in high favor with the voters.

Low Coal Gets Higher Scale

Kansas has two seams of coal, the upper or Lightning Creek seam, which ranges from 20 to 25 in. in thickness, and the lower or Weir-Pittsburgh seam, ranging from 28 to 46 in. in thickness, to quote the 1915 inspection report of the State of Kansas, and from 33 to 42 in. thick, to quote Eugene McAuliffe's account of the Kansas field (September issue, 1917, American Institute of Mining Engineers, page 1392).

The United Mine Workers and operators of Kansas agreed Dec. 22 to grant a differential of 6¢. per ton in favor of the upper bed. The coal, though thin, is said to be of higher grade than that in the lower bed. It covers thousands of acres in Crawford and Cherokee Counties.

This long line of shivering women rejoices to hear that the anthracite miners are doing their utmost to produce the coal for which there is so much need.



Courtesy of New York Tribune

A long coal line at Fishman's yard, in Goerck Street, New York City, extending around the corner into East Houston Street. The line forms before the yard opens at 7 o'clock in the morning and continues until the yard closes its doors at 6 o'clock in the evening.

DISCUSSION BY READERS

First Aid to the Uninjured

Letter No. 1—I have read with increasing interest the many letters appearing in *Coal Age*, under the head "Discussion by Readers," and can say that I have gained a large amount of useful knowledge from the many spicy contributions.

Since the closing of the discussion on "Qualified Mine Foreman," it has occurred to me that space would be available, in these columns, for hearing what readers have to say on an important subject that is of vital interest to all foremen and, yet, is largely neglected by the great army of men who are in charge of coal mines. We read much about "First Aid to the Injured," and great attention is paid to giving all needed instructions in rescue work and holding first-aid contests.

I remember, however, that Mine Inspector P. J. Moore, a few years ago, prepared an interesting paper entitled "First Aid to the Uninjured." The paper was read at the annual meeting and was published in the proceedings of the Mine Inspectors' Institute of the United States of America, 1914, and contained many pertinent remarks. May we not have, in *Coal Age*, a thorough discussion of the many points involved in giving first aid to the uninjured?

STATISTICS COMPILED BY THE BUREAU OF MINES

For the purpose of showing the need of energetic efforts to reduce the loss of life in coal mining, in this country, the United States Bureau of Mines shows that over 9,800,000,000 tons of coal have been mined in this country since the first inspection law was passed following the great Avondale disaster of 1869. That law was passed by the Pennsylvania State Legislature in 1870.

The records show that from the year 1870 to the present time, 54,543 men have lost their lives in coal-mining accidents. During the same period, the death rate is given as 3.30 per thousand men employed in the mines; or 55 lives have been sacrificed for every 10,000,000 tons of coal mined, which corresponds to a production of 180,676 tons of coal per life lost.

That the conservation of human life, in coal mining, is of paramount importance no one will deny. Each fatal accident in the mines leaves its impress on the community, in the loss of a useful citizen who is too often the bread winner of a family. With a view of reducing to a minimum the number of accidents occurring in mines, most coal-producing companies conduct campaigns of education employing different methods to impress upon their employees the need of more care in the performance of their work for their own protection and the security of the mine.

Notwithstanding the great efforts that have been made in this direction, we are forced to admit that while the number of accidents have been reduced, it is practically impossible to eliminate them entirely.

There will always be a certain number of so-called "unavoidable accidents," which cannot be foreseen or guarded against.

The consideration of ways and means to reduce the number of accidents in mining work constitute what may be called "First Aid to the Uninjured," and it is this phase of the subject that I would like to see discussed thoroughly in *Coal Age*. Let our mine foremen express their opinions freely along this line and suggest ways of reducing mine accidents to a minimum. I have a few suggestions to make, myself, in the near future, which I hope will aid in this direction.

Carbondale, Penn.

CHARLES ARNOLD.

Coal Production and Booze

Letter No. 3—I had hoped to see this subject attract more attention than it did when first presented for discussion, a short time ago. I feel that it is as great a curse as any with which coal mining is afflicted.

It is common for men who are not given to the drink habit, and are good loyal citizens in other respects, to reason that, since it does not make any difference to themselves whether liquor is sold or not, there is no reason why they should care to make an effort to prevent its manufacture and sale to others. If such men would look about them and reflect on the many evil effects of the booze habit, and realize to what an extent it controls production in all industries, but particularly in coal mining, they would be forced to another conclusion and be induced to take an active part in stamping out this great evil.

EFFECT OF THE DRINK HABIT

Men and women addicted to drink will not only spend all they have to satisfy their appetite for liquor, but will often sell their tools and other available possessions to secure enough drink to quench their thirst. I have known miners to part with their tools, seemingly unmindful that these are their only means of earning a livelihood. Women have sold household goods and pawned articles of jewelry and wearing apparel to satisfy the appetite of which they are the victims. Can anything be more deplorable?

The result to be most dreaded from the yielding to this habit is the condition of the drinker in which he is led to do things that he would never be guilty of doing when in a sober state. The spread of the drink habit in any community drives out the better class of residents, who are forced to seek a home among more respectable associates. Such a condition prevailing in a mining camp is a decided loss to the industry and a menace to the safety of mining operations in that locality.

It will be generally acknowledged that the only satisfactory way of combating the drink habit in a community is to remove the cause. As long as the

saloon is permitted to remain in a place, it gives to those who cannot control their appetite for drink an opportunity to satisfy their thirst, which they continue to do daily.

The present is a time when every man should feel it his duty to aid his country in every way possible. He can do no more effective work, in the present crisis, than to take his share in driving out the causes of wastefulness, incompetency, sickness, and shortage of coal production, all of which are the direct result of booze. To win the war for democracy and make the world one great republic, we must drive out this curse of our country.

INTEMPERANCE AND THE WAR

The war has taught the people of Europe that booze is their greatest enemy, and they have not been slow to take steps to reduce its effect in their midst. Mine officials and miners should realize that the same is true in respect to the coal-mining industry. All mining men will agree that the booze habit is the direct cause of men losing many days' work, and the output of the mine is reduced in the same proportion. It goes without saying that this condition is unnecessary.

The drink habit lowers the standard of morals among mine workers, who are made more reckless, thereby, and the safety of the mine menaced, while the quality of the coal produced falls below the standard. At times, it happens that the drinker is a man in charge of some important operation or work; and, as a result of his temporary incapacity for the proper performance of his duties, an accident results that shuts down the mine for days or weeks at a time. Let us then do what we can to remove this shameful cause and strengthen the coal industry and make the mines safer for work.

Hooversville, Penn.

J. H. TIPTON.

Surveying and Mapping

Letter No. 2—Referring to the article of W. L. Owens, *Coal Age*, Dec. 8, p. 960, I note he takes exception to the system of using the same station numbers, in different entries in the same mine, and advocates a continuous numbering system for the entire mine. Mr. Owens gives as his main reason for this procedure that it is a great help in locating one's self in a strange mine, by noticing the station number marked on the rib and finding that number on the mine map, a blueprint of which is carried by the person.

My own preference, in this regard, is to adopt a system of stationing each entry, beginning at zero and numbering each station of 100 ft. consecutively; thus, 0, 1, 2, 3, etc. These even stations may or may not correspond to a transit point which, in the latter case, takes its number from the last station plus the distance to the transit. All station numbers are marked with whitening on the rib.

For example, station numbers on the main heading start from zero at the shaft and continue, in the manner described, to the face of the entry. The butt headings driven off the main entries, likewise, starting from zero on the main heading, are numbered consecutively to their face. Also, the room headings, starting from zero on the butt entries, are numbered consecutively in the same manner.

This system of numbering stations enables the distance between any two points or the length of the entry to be ascertained at once. Also, by adding the plus of any entry to the plus on the main heading at its mouth, the required distance from the shaft is obtained.

Elevations are taken at each of the even stations and at any intermediate points where the grade changes. These elevations are marked on the map, and the difference between the elevations of two consecutive even stations gives the grade of the entry for this stretch. This is a great help in planning ditches, or grading for permanent track, where the irregularities are not too great, in which case the engineers must set grade points. By heading the traverse sheets of each entry with the name of the heading there can be no confusion of station numbers, either in the mine or on the map.

Curtisville, Penn.

G. G. LONG.

Setting Timber on a Pitch

Letter No. 1—Referring to the inquiry of W. T. Hale, *Coal Age*, Dec. 22, p. 1072, asking how timber should be set on a pitch of 20 or 25 deg., when the roof and floor of the seam are hard and smooth, permit me to offer one or two suggestions in addition to the points touched upon in the reply made to this inquiry.

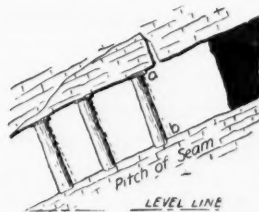
It can be assumed from Mr. Hale's description that the roof of this seam is strong and will be apt to break in a large mass covering a considerable area. In that case the tendency of the roof to slip down the pitch will be manifested to a much less degree than where the roof is frail and breaks in smaller pieces.

Where the roof is strong and supported against slipping by strong gangway stumps and pillars, the principal roof pressure will be in a direction normal to the seam. In that case the resistance of post timber will be greater if the props are set to correspond more nearly to a normal position in the seam.

On the other hand, if it is assumed that the roof slate is friable or contains joints, which cause it to break in smaller pieces and increase the tendency to slip down the pitch, it is necessary then to give each post a slight inclination up the pitch from the normal. As stated in the reply to this inquiry, such a position of the post will cause it to tighten when the roof begins to move.

Again, with a frail roof such as I have just mentioned, a break will often occur a short distance back from the face of the coal, as illustrated in the accompanying figure. As here shown, this will leave a large piece of rock that is ready to fall vertically. In that case, if the posts supporting the rock were set normal in the seam, the loose piece would have a tendency to ride the props and fall in the direction of the dip. If, however, the supporting posts are underset slightly at the bottom and the foot rests in a hole cut in the floor of the seam a few inches below the normal line *ab*, drawn through the top of the post, any slip of the loose piece will tend to tighten the post and bind the rock against the roof, holding it secure.

Experience teaches that it is wiser to give the props too little rather than too much underset. In case the



underset of a post is too great, a loose piece of top will tend to ride the post and fall in the direction up the pitch. This cannot occur if the underset is less than it should be, as the tendency of the rock to ride the post is then checked by the loose piece being wedged against the solid formation.

The amount of underset of a post will vary with the inclination of the seam and the general character of the roof strata. A good rule, in practice, is to set the post so that the angle it makes with the normal in the seam will vary from one-fifteenth to one-fifth of the inclination of the seam. In the present case, taking the inclination of the seam as 25 deg., the post should be underset to an angle varying from 2 to 5 deg., according to the nature of the roof. In mining practice the tendency is to give a post too much underset and care should be taken to avoid this.

In order to prevent posts from being knocked out by coal blasted from the face, the foot of each post should be sunk at least 2 in. in the floor of the seam and the head of the timber tightly wedged against the roof.

Oak Hill, W. Va.

WILLIAM DICKINSON.

Answering Examination Questions

Letter No. 1—I have always been interested in the question of blasting coal, and it has seemed to me when reading over examination questions that bear on this subject that there is not sufficient time given to candidates to answer such questions properly.

A question relating to blasting appears in *Coal Age*, Vol. 11, p. 1134. The question is divided into three parts—a, b, c—and while the answer given is clear and mentions many important points in reference to blasting coal, the answer does not meet my idea of how a candidate should reply to such a question. It has always been my practice to study carefully the mine law and arrange a key to the different articles and sections of the law that will enable me to answer fully certain questions that may be asked.

PENNSYLVANIA LAW REGARDING BLASTING

Speaking of blasting coal, my key, as I remember it, was the following: Art. 4, secs. 9, 10, 14; art. 7, sec. 4; art. 9, sec. 1; art. 11, secs. 54 and 87 to 97, inclusive; art. 16, secs. 1, 2, 3; art. 25, Special Rule 1; General Rules, 3, 13, 14 and 18 to 25, inclusive. It was my habit in examination to take up each of these references in order and comment on the requirements of each. Only in this way can a complete answer be given to important questions such as blasting.

It is true that there are many duplications in the several references just mentioned; but, in my opinion, there is no other way of giving a complete answer to such a question, as the mining law is drawn with the intention of making the work of blasting coal safe.

If blasting in coal mines was carried on according to the requirements of the Pennsylvania Bituminous Mine Law, there would be little cause for anxiety when the work is performed under dangerous conditions. Trouble arises wholly or chiefly from illegal practices in blasting. Some miners are in ignorance of the requirements of the law and face these dangers unknowing, but many others are reckless and disregard both the law and the mine regulations—they take a chance.

In closing, let me say that during the five years when I worked at Monckton Main, Yorkshire, England, there was no shot fired in all that time. The coal was broken down by what was then known as the "plug and feather" method of mining. This regulation forbidding the blasting of coal was enforced in that mine more completely than in any mine in which I have worked in this country. Although no coal was blasted, better results were obtained in producing a good output per man than is realized in the mines here, and the dangers of blasting were wholly eliminated.

JOSEPH A. GREAVES,

Macdonaldton, Penn.

Mine Foreman.

Wagon Mines vs. Patriotism

Letter No. 4—A short time ago, several letters appeared in *Coal Age* regarding the advisability of operating small coal mines that cannot be worked to the same advantage or with the same efficiency as larger mines furnished with up-to-date equipment.

There are two sides to the question, which must both be considered before a correct judgment can be given. In favor of the continued operation of such mines, it can be argued that they commonly represent the invested savings of practical mining men who through frugality and hard work have managed to accumulate a few hundred dollars. With this capital they have secured the control of a small piece of coal land, which is generally isolated from any railroad or other means of shipping the coal.

CONDITIONS SURROUNDING SMALL MINES

In most cases the coal lies near the surface or outcrops on the property, which enables it to be reached by a drift or slope at small expense. The seam may be thin and the coal of an inferior quality that would offer no inducement to a company of large means. The small capital invested will not permit of the erection of a tippie or the construction of a sidetrack, and the coal must be transported from the mine to the railroad by wagons. The expense of handling the coal in this manner is great and leaves only a small profit.

In the present crisis these small mines are face to face with the difficulty that they cannot secure cars for loading, the railroads being compelled to refuse them this service owing to the scarcity of flats, which can be loaded more promptly at the larger mines. That the railroads are guilty of discrimination is true, but a little reflection seems to make this justifiable. Knowing several of these small operators who have invested their all in the undertaking and are now compelled to shut down their mines, I sympathize deeply with them in the present condition.

Looked at from another angle, however, the situation presents a different aspect. The thought of every man, woman and child is, or should be, that America is at war, and everything must give place to that condition. When we are told that the output of the coal mines the past year is 50,000,000 tons short of the demand, we realize that not a shovelful of coal should be turned over twice except it be absolutely necessary. Unless every effort is made to conserve the means of producing coal, what can we expect in the coming year, judging from the shortage of 1917, and knowing that America has as yet scarcely fired a shot?

Labor is scarce in all industries throughout the country and men are needed everywhere. As little foreign labor is available, it is more than ever important that the men now employed in the coal mines should be used in the most effective manner possible. By way of illustration, compare the results in the operation of wagon mines with those obtained in larger mines equipped with every needed appliance to handle the coal quickly and at the least expenditure of money and labor.

In the small mines the work is almost wholly pick work, and a miner can mine, say six tons of coal a day, which is hauled to the surface by mules or pushed by hand. The mine is, perhaps, a mile from the railroad, and the loading of a 50-ton car, standing there on the siding, will require six two-horse teams making four trips a day. Thus, the entire operation of mining and loading this coal will include the work of eight miners, two mule drivers and six teamsters, making sixteen men, two mules and twelve horses, to say nothing of other bosses and helpers.

CONDITIONS IN THE LARGER MINES

Look now, for a moment, at an up-to-date machine mine where a miner will mine from 12 to 14 tons of coal a day, which is hauled out of the mine by motors and loaded by machinery into the railroad cars standing under the chutes at the tippie. In this comparison we are not interested in the relative cost of production, which is much less per ton of coal mined in the larger mines than in the smaller operations. My desire here is to refer to the most effective use of all available labor, in the effort to secure the largest possible output of coal and the greatest economy in the distribution and use of railroad cars for its transportation to market.

In the thoughtful consideration of this question, no one who is loyal to our country can reach but one conclusion, although that may seem to work a hard-hip on many small operators. The present is a time when individual interests must be sacrificed to the general welfare and safety of the country.

Heilwood, Penn.

THOMAS HOGARTH.

Clearing a Heading of Gas

Letter No. 5—In common with other writers who have discussed the matter of clearing a heading of gas by hanging a canvas on the return airway, 90 ft. back from the face, as described in the inquiry of "Mine Foreman," *Coal Age*, Nov. 10, p. 823, I was inclined not to take the suggestion seriously. But, as someone has expressed it, the plan appealed to me at first as "a joke."

It seems natural to suppose that probably four men were working at the head of these two entries, and if such was the case, since gas was being generated, the law would require a circulation of 200 cu.ft. per man per minute, which would mean a current of 800 cu.ft. per minute passing through the last crosscut. Practically all firebosses will agree that the proper thing to do to clear these headings of any accumulated gas would be to carry the air current up to the working face, by extending a brattice from the outby rib of the crosscut.

If a brattice was set 18 in. from the rib, the coal being 6 ft. thick the air space behind the brattice would

be about 9 sq.ft. Then, if the required quantity of air was in circulation, the current would have a velocity of $200 \div 9 =$ say 88 ft. per minute, which would be ample for the removal of gas in most cases. However, in order to effect the complete removal of the gas, it may often be necessary to extend the canvas at the end of the brattice toward the roof so as to deflect the air against the gas.

In the present instance, however, this plan appears to have failed, and recourse seems to have been had to a most unusual scheme—namely, shutting off the return airway by hanging a canvas on that entry, 90 ft. back from the face. It is little wonder that such a plan is commonly condemned as bad practice, and I am not ready, myself, to say otherwise.

For the sake of argument, however, let us view the case from another standpoint. It is well known that firebosses frequently adopt unusual expedients to overcome difficulties with which they are beset. A fireboss is charged with the duty of quickly removing any dangers existing in working places, so as to permit the men to proceed to work without loss of time. It is rare that trouble results from the neglect of carelessness of firebosses, who are naturally more cautious and feel greater responsibility than other men working in the mine.

SUGGESTS A POSSIBLE EXPLANATION

There is just one aspect of this proposition that gives it a more reasonable appearance. Consider, for a moment, there are two airways, say 6 x 8 ft., each 90 ft. long, giving an air space of nearly 9000 cu.ft., which is filled with air and gas. It may be assumed that the body of gas it is desired to remove is lodged at the head of these entries. Now, it is possible that the fireboss, in this case, reasoned that the closing of the return airway would allow the gas accumulated at the face to diffuse throughout the entire air space and thus be diluted below the explosive point. The question is, Was he correct in making this assumption?

When the return airway was closed there would still be a gentle circulation of air, owing to the cooler air at the bottom of the entries rising toward the roof, and this would have a tendency to assist the diffusion of the gas working along the roof. My idea is that, finding the brattice did not remove the gas, this fireboss sought to dilute the latter by giving time for diffusion to take place.

I would like to ask what other gas inspectors and firebosses would do to effect the complete removal of gas located at the head of a pair of entries going to the rise, provided the brattice extended close to the face failed to accomplish the desired result.

Worley, Ky.

GAS INSPECTOR.

The Handling of Men

Letter No. 5—Mine officials, for some time, have recognized that the efficient handling of men is one of the largest factors in the economical mining of coal. This was never more true than at the present time when labor is growing more scarce every day, owing to the decreased immigration and because many of our best, most ambitious and intelligent miners have left the mine for work in factories or on the railroads. Also, a large number of reservists have returned to

their own country to take their share of the burden of war.

Miners and daymen working in the mine have taken advantage of this condition and have made demands that are often unreasonable. The day is past when you can show a miner a wet place, which they have learned to call a "dog hole," and tell him to "work that or nothing." The mine foreman is no longer, as formerly, the company's "slave driver," and the worker his slave. In the present order of things the successful mine foreman must be a good general. He must know his men and understand human nature.

Successful mining requires a good organizer in charge of the work. The great problem is to get the right man in the right place. There are many misfits both in coal mining and other industries. If some great power could take these misfits and place them where they belong—in other words, give them work suited to their capability and nature—what a great change would result in our industrial enterprises.

The story is told of a minister and one of his elders—a farmer—whose views differed widely. The minister had been contemplating the heavens and remarked that he had received his first inspiration to preach the gospel from tracing the letters G. P. C. among the stars. These letters, he said, meant "Go preach Christ." At this point, the elder interrupted the minister by suggesting that, to his mind, the letters meant "Go plow corn."

CONDITIONS THEN AND NOW

Our older mining men who have established a successful record for themselves, by reason of their habit of driving men and forcing them to do the work before them or quit, are not as successful today when conditions are so greatly changed. An incident that illustrates conditions a few years ago is the following:

On making application for work, a man was asked by the foreman, "Are you a good miner?" His reply was, "I believe so." "Well," said the foreman, "will you tell me what qualifications a good miner should have?" The man hesitated a minute and then replied, "A strong arm and a weak head."

At that time, there was more fact than fiction in the miner's reply. The more intelligent mine worker could not stand the abuse that was commonly heaped upon him by the foreman, and it was the fellow with the "weak head" that got along the best in the mine, while the better class of men were forced out of the mine to seek work among more congenial surroundings.

It was this trend of affairs in coal mining that is largely responsible for the present scarcity of labor, since it resulted in the necessity of the employment of a large proportion of foreign labor that has not only been subject to the call to arms, from their home lands, but forms a class with whom our mine officials do not naturally mix.

Yes, present conditions make the tactful handling of men a most important feature in the operation of the mines today. By such means I have been able to get men to work a back heading, in low coal going to the dip and where the water ran in streams from the roof, so that the men were obliged to wear gum suits.

These were young men, however, and equal to the task. The work required the constant use of a hand pump, and it was necessary to push the cars in and out

of the place. At the end of the day the men would be wet to the skin, but they both stayed by the job until, finally, they were forced to quit, being so stiff that they could scarcely get about.

My remarks may arouse the question of mine discipline being set aside, but such is not the case. Discipline is strengthened when the men realize that the work must be done, and the honest worker is more inclined to take his share in serving the interests of the company when treated kindly.

No rule can be given for the use of tact in handling men. I could not follow another's plan nor expect another to adopt mine. The main point, however, is that mine officials and miners regard each other's interests more than is common at the present time.

Osceola Mills, Penn.

S. D. HAINLEY.

Relative Size of Intake and Return Airways

Letter No. 2—In discussing the question of which should have the larger sectional area, the intake or the return airway of a mine, F. E. Schroyer states, *Coal Age*, Jan. 5, p. 32, "The haulage road should be the larger airway, regardless of whether it is the intake or the return."

Mr. Schroyer claims that the resistance of the moving cars to the passage of the air on the haulage road demands an increased sectional area. In this regard, it would be well to remember that trips are hauled in both directions on the haulage road and, while they obstruct the passage of the air when going in one direction, they assist it when passing in the opposite direction.

In considering conditions affecting the size of haulage roads, the safety factor calling for a good uniform clearance at the side of the track is important and may require an increased sectional area of the haulage road.

This question naturally suggests another of equal importance, which must be answered before it can be determined whether the area of the intake or return airway of a mine should be the larger. The question is one on which there has been some difference of opinion. It is, Should the haulage road of a mine be made the intake or return airway?

Some have argued that the answer to this latter question depends on whether the mine is or is not generating gas in dangerous quantity. Most mining men agree that, in the case of a mine generating gas, haulage should be performed on the intake airway, for the reason that greater safety is insured where this work is performed on the fresh air current, which is free from gas.

Making the intake airway the haulage road, however, necessitates the use of an exhaust fan for ventilation. On the other hand, since the blowing system of ventilation possesses certain advantages, and as this system requires that haulage be performed on the return airway, it seems better to adopt this plan in a mine not generating gas.

We must therefore conclude that, in the operation of a non-gaseous mine where haulage is performed on the return airway, all considerations point to making the sectional area of that airway larger than the area of the intake, since it has been pointed out that the return air is generally larger in volume than the intake.

Thomas, W. Va.

W. H. NOONE.

INQUIRIES OF GENERAL INTEREST

Boiler Horsepower

I have a somewhat hazy idea of the meaning of the term "boiler horsepower" and its relation to the indicated horsepower of an engine. Kindly explain the use of this term and state whether a boiler of 25, 50 or 100 hp. will furnish sufficient steam to operate an engine designed to develop the same horsepower. In other words, when estimating the size of boiler required to operate an engine of a given rated horsepower, is it correct to take the horsepower of the engine, as the required horsepower of the boiler? MINE ENGINEER.

Charleston, W. Va.

The term "boiler horsepower," used to express the capacity of a boiler to supply the necessary steam to operate a particular engine for a given service, has no reference whatever to the indicated horsepower developed by that engine in performing the specified service. A boiler horsepower is an arbitrary standard that has been adopted for the rating of boilers. It has reference to the weight of water evaporated per hour or the weight of steam generated in that time. The standard boiler horsepower adopted by the Society of Mechanical Engineers and now in general use is the evaporation of 34.5 lb. of water per hour, from a feed-water temperature of 212 deg. F. to steam at the same temperature. This arbitrary standard serves merely as a unit or basis for rating the evaporative capacity of a boiler.

The capacity of a boiler to generate steam differs widely in different types of boilers and in boilers of the same type designed for different service. It depends primarily on the extent of heating surface, but is modified very largely by numerous other factors, such as the quality of the coal burned, its rate of combustion as influenced by the draft, grate area and depth of fuel, manner of firing, the character of the feed water and the care taken to keep the boiler in proper condition.

A boiler rated at 100 hp., under proper care and management, should be capable of generating the equivalent of $100 \times 34.5 = 3450$ lb. of steam per hour, from and at 212 deg. F. The consumption of this weight of steam per hour, by an engine, however, does not mean that the engine is developing 100 hp. An engine developing that horsepower may consume more or less steam per hour, according to its type of construction and numerous details that render the engine more or less efficient in the development of power.

For the sake of illustration, we will consider, here three types of steam prime movers represented by the steam turbine, the Corliss condensing engine and the simple, noncondensing, slide-valve engine. Every engine has a specified water rate, which is guaranteed by the manufacturer. This water rate differs widely in different types of engines and with different manufacturers.

The term "water rate" refers to the weight of steam consumed by an engine, per indicated horsepower-hour.

Of the three types of prime movers mentioned, the steam turbine has the lowest water rate, which ranges from, say 8 to 15 lb. of steam consumed per indicated horsepower-hour. A Corliss, condensing engine, has a rate commonly ranging from 18 to 25 lb. of steam consumed per indicated horsepower-hour, while a simple, noncondensing, slide-valve engine, may have a water rate ranging from 30 to 60 or more pounds of steam consumed per indicated horsepower-hour. In any of these types of engines, the actual steam consumption, per indicated horsepower-hour, depends upon the degree of efficiency in the design and workmanship of the engine.

Now, applying these facts to determine the size of boiler required to operate, say a 100-hp. simple, noncondensing, slide-valve engine, using dry, saturated steam, at 120 lb. pressure and having a guaranteed water rate of, say 40 lb. of steam per indicated horsepower-hour at full load, the actual steam consumption will be $100 \times 40 = 4000$ lb. per hour.

Then, assuming a feed-water temperature of, say 70 deg. F. and reducing this steam consumption to its equivalent evaporation from and at 212 deg. F., by multiplying by the corresponding factor of evaporation, which is 1.192, for the given temperature and pressure, we obtain $4000 \times 1.192 = 4768$ lb. per hour. The required boiler horsepower, in this case is, therefore, $4768 \div 34.5 = 138$ boiler-horsepower.

To produce the same indicated horsepower when using a Corliss condensing engine having a water rate of, say 22 lb. of steam per indicated horsepower-hour, which corresponds to a steam consumption of $100 \times 22 = 2200$ lb. per hr., would require an equivalent evaporation of $2200 \times 1.192 = 2622$ lb. of water per hour, and the required boiler horsepower, in this case is $2622 \div 34.5 = 76$ boiler-horsepower.

Increase in the Emission of Gas Following an Explosion.

I have noticed, on one or two occasions, that there appeared to be an increase in the quantity of gas given off in the mine immediately after an explosion, as working places contained considerable quantities of firedamp that should have been consumed if present previous to the blast. If this is possible kindly explain its cause.

—, Colo.

FIREBOSS.

Immediately following an explosion of gas or dust in mine workings, there is formed a more or less vacuous condition of the air in the mine. While this is owing, in part, to the rush of the explosive wave toward the mine entrance, it is chiefly or largely due to the cooling of the atmosphere remaining in the mine, owing to the rapid absorption of heat by the strata. The vacuous condition thus created has a tendency to reduce the pressure and invites a greater outflow of gas from the strata, which may frequently occur at the face.

EXAMINATION QUESTIONS

Difficult or Unpractical Questions Asked in Examinations

Ques.—A sample of firedamp taken from the mine is found to have a specific gravity of 0.9; what are the proportions of the mixture? Please show the method of working.

Ans.—In order to arrive at any satisfactory solution of this question, it is necessary to assume that the firedamp is composed wholly of methane (CH_4) and air. Then, denoting the percentage of methane by x , 100 volumes of the mixture will contain x volumes of gas and $100 - x$ volumes of air.

But, since the specific gravity of methane, referred to air as unity, is 0.559 and the weight of gas or air is found by multiplying its volume by its specific gravity, that of air being 1, the relative weight of gas, air and mixture, in 100 volumes of the firedamp, is as follows:

Weight of methane,	$0.559 \times x = 0.559x$
Weight of air,	$1(100 - x) = 100 - x$
Weight of mixture,	$0.9 \times 100 = 90$

Finally, since the sum of the weight of the gas and air is equal to the weight of the mixture, we have

$$\begin{aligned} 0.559x + 100 - x &= 90 \\ x(1 - 0.559) &= 100 - 90 = 10 \\ x &= \frac{10}{1 - 0.559} = \frac{10}{0.441} = 22.67 \text{ per cent.} \end{aligned}$$

A firedamp mixture consisting of pure methane and air and having a specific gravity of 0.9, therefore, contains 22.67 per cent. of gas.

Ques.—A gravity plane has an inclination of 7 deg. and is 1800 ft. long; the rope weighs 3800 lb. A loaded car weighs 2800 lb. and an empty car 1500 lb. What number of cars must be in the trip to start it?

Ans.—The angle of inclination being 7 deg., its tangent is 0.12278, and the grade of the incline is, therefore, say 12.3 per cent. or 0.123, expressed decimally, which is the gravity factor in this calculation. Also, assuming a track resistance of, say 30 lb. per ton, the frictional factor resisting motion is $30 \div 2000 = 0.015$.

In the operation of a gravity plane, the number of empty and loaded cars is equal and the weight of these cars is therefore balanced, while the weight of the rope and the coal hoisted is unbalanced. Hence, the force acting to produce motion is the gravity pull due to the weight of the coal hoisted, in a single trip, while the forces acting to resist motion when starting the trip are the gravity pull of the rope and the friction pull of the entire moving system.

Calling the number of loaded cars in a trip n , the weight of coal hoisted in a single trip is $(2800 - 1500)n = 1300n$. The gravity pull due to this weight of coal is, therefore, $0.123 \times 1300n = \text{say } 160n$, which is the force acting to start the trip. But the weight of the rope being 3800 lb., its gravity pull is $3800 \times 0.123 = \text{say } 467 \text{ lb.}$ The combined weight of one load-

ed and one empty car is $2800 + 1500 = 4300 \text{ lb.}$, which makes the weight of the loaded and empty cars, in a single trip, $4300n \text{ lb.}$ Adding to this the weight of the rope (3800 lb.) gives for the weight of the entire moving system $4300n + 3800$. This must then be multiplied by the frictional factor 0.015, to obtain the frictional resistance to motion, which added to the gravity pull of the rope (467 lb.) gives the total force resisting motion.

Finally, equating the force producing with that resisting motion, we have,

$$\begin{aligned} 160n &= 0.015(4300n + 3800) + 467 \\ 160n &= 64.5n + 57 + 467 \\ 95.5n &= 524 \end{aligned}$$

$$n = \frac{524}{95.5} = 5.4, \text{ say 6 loaded and 6 empty cars.}$$

Ques.—What is the safe working load of a crucible steel rope $1\frac{1}{2}$ in. in diameter, on a slope 500 ft. long and dipping 35 deg.?

Ans.—The safe working stress, in a six-strand, crucible-steel haulage rope, $1\frac{1}{2}$ in. in diameter, assuming a factor of safety $f = 8$, for hoisting on this long steep slope, is

$$S = \frac{37d^2}{f} = \frac{37(1\frac{1}{2})^2}{8} = 5.85 \text{ tons}$$

Since this question gives the inclination and length of the plane, it evidently intends to ask for the maximum safe load that could be hoisted. To ascertain this load, let W = the combined weight of the loaded trip and the rope. The gravity pull due to this weight resting on an incline making 35 deg. with the horizontal is $W \sin. 35 \text{ deg.} = 0.573 W$. Again, assuming a track resistance of 30 lb. per ton, and allowing this to apply likewise to the friction of the rope resting on the rollers, the normal pressure on the plane due to the entire load being $W \cos. 35 \text{ deg.} = 0.819 W$, the friction pull is $30(0.819 W) \div 2000 = 0.012 W$. The total pull, or the sum of the gravity and friction pulls is, therefore, $(0.573 + 0.012)W = 0.585 W$.

Finally, equating this last result with the safe working stress of the rope, found previously, gives for the total weight of the loaded trip and the rope $W = 5.85 \div 0.585 = 10 \text{ tons.}$ But a $1\frac{1}{2}$, six-strand wire rope weighs 2 lb. per lineal ft., which makes the total weight of the rope resting on the incline $2 \times 500 = 1000 \text{ lb.}$, or $\frac{1}{2}$ ton. Deducting this from the total weight just found gives 9.5 tons as the weight of the loaded trip or the maximum allowable load hoisted.

Ques.—What is meant by the "equivalent orifice" in mine ventilation?

Ans.—This question has little practical bearing on the question of fan ventilation to which it is usually applied. It expresses the ratio of the quantity of air in circulation to the square root of pressure or water gage. Practically it is impossible to measure the water gage due to passing a given quantity of air through a fan, and for this reason the use of the term in ventilation is limited and of little value.

Coal and Coke News

For the Busy Reader

For the first time in its history, the Thomas A. Edison plant was closed recently. Lack of fuel was the cause.

No excuses will be received from coal concerns under contract to furnish coal to the camps and cantonments. Fuel for this purpose will, under an order just issued, have priority over all other requirements except railroad fuel.

By definite order of the Fuel Administrator all industries east of the Mississippi must be closed for five days, beginning Friday, Jan. 18. After that period not a plant in the affected district must burn fuel for ten consecutive Mondays. The order has met with much criticism.

The Federal fuel administrator of Iowa is performing a service that is worthy of emulation elsewhere. He has secured the services of six expert firemen, who visit every city of consequence in the state and give instructions to the firemen in the apartment houses, hotels, etc., as to the proper method of using their coal.

To expedite the movement of coal into New York City an arrangement has been made to utilize the car floats of the Pennsylvania R.R. to carry coal cars from Jersey terminal points through New York Bay to coal yards on the Harlem River. Plans are also being made to handle coal by all-rail routes to New England up the west bank of the Hudson River.

M. A. Hanna & Co., of Cleveland, Ohio, which controls the Susquehanna Collieries Co., with operations in the Shamokin, Wilkes-Barre, Nanticoke, Pottsville and Lykens regions, announced a 75c. a ton increase on all sizes of anthracite coal. The increase, it is said, follows Governmental satisfaction that the collieries have actually passed from Pennsylvania R.R. control to independent ownership.

The Chesapeake & Ohio has lost part of its bunker business because of the recent Government order requiring vessels to load from barges in the stream instead of from alongside piers. This had proven such slow work masters of a number of ships, instead of stopping at Newport News, have gone on to Norfolk for coal. There has been filed with the Government a protest against the new order, it being claimed that the port is being injured as a result.

The reports received from Deputy Fuel Distributor D. R. Lawson, of Fairmont, W. Va., show that the new plan of the Fuel Administration of decentralizing the distribution of emergency orders for coal is working admirably. Under the new plan every mine in the district has been receiving at least partial supplies of cars, and the daily loss of tonnage, which formerly ranged from 32,000 to 38,000 tons has been reduced to from 1500 to 2500 tons.

No coal will be exported from the United States during 1918 "except for purposes contributing materially to the conduct of the war." This policy, it was announced on Jan. 7 after a conference of officials of the State Department and War Trade Board with Dr. Harry A. Garfield, Federal Fuel Administrator, inaugurates a sweeping control of the export coal situation, which may throw into the discard all existing contracts for deliveries this year. Bunker coal is not affected by this decision.

HARRISBURG, PENN.

Ten million dollars annually will be the direct loss to the State of Pennsylvania under Government ownership of the railroads," said Chairman Ainey of the Public Service Commission of Pennsylvania, on Jan. 11. He stated that a similar loss was

almost sure to follow if railroads are to be Federally incorporated. For the years 1915-1916 the railroads paid into the State Treasury nearly nine millions of dollars, and that amount has been increased until it now reaches the enormous sum of about ten million. The loss of such an amount would seriously affect the revenues of the state and could only be met by imposing larger burdens of taxation upon coal, oil and other minerals, and an increase in taxes upon public utilities, coal companies, etc.

Chairman Ainey, after a conference with Director General McAdoo, on Jan. 11, issued an order increasing demurrage rates on cars on railroads in Pennsylvania effective Jan. 21.

Demurrage charges per car per day or fraction of a day are to be \$3 for first day, \$4 for second day, and for each succeeding additional day the charge to be increased one dollar in excess of that for the preceding day until a maximum of \$10 per car per day shall be reached on the eighth day of detention beyond the free time, the charge thereafter to be \$10 per car per day.

The Clearfield County Dry Federation, in half-page advertisements, has started its fight to drive the saloon out of Clearfield County, and everything possible is going to be done to give the knockout blow at the coming license court to be held Jan. 21. Remonstrances were signed in all the churches of the county, and from now on a house-to-house solicitation is to be made to get signers to the remonstrances.

In its half-page advertisements the Federation says: "Quit kicking about coal. Of course there is a coal famine, but what of it? During the last fiscal year the breweries in America produced 60,729,509 bbl. of beer. It requires 243 lb. of coal to produce a barrel of beer. A pound of coal for a pint of beer. In other words, the breweries in America used up 7,530,395 tons in coal during the year in making beer. One hundred and forty loaded ships were lying idle in New York harbor unable to sail for lack of coal. Have you heard of any breweries lying idle for lack of coal? Schools and factories are closed for want of coal. Have any breweries closed for want of coal? Booze or coal?"

Every effort is being made to put 500 saloons out of business in Schuylkill County in the interest of a greater production of coal in the county. A movement has been under way for the last two months to have the Government refuse Federal license to two-thirds of the saloons in the coal region, because of the effect of their business on the efficiency of the miners.

It is said that many collieries are affected from two to four days by lack of workers after pay day, and it is proposed to abolish this condition. The matter has been taken up with the Government because there was little hope for any radical reduction in the number of saloons by the action of the court.

Scranton's biggest legal victory, so far as the mine-cave problem is concerned, came on Jan. 11, when Judge James J. O'Neill, in equity court, granted the City of Scranton an injunction restraining the People's Coal Co. from mining and removing coal and endangering the support of all streets and public highways in the mine-cave area of West Scranton, excepting Main Ave., which was covered by a suit tried in the courts several years ago.

In addition to granting the injunction, Judge O'Neill awarded the city approximately \$30,000 damages. Court finds the city is entitled to \$23,935.81 for damages to sewers and \$5265 for damage caused to paved streets by reason of subsidences.

From the standpoint of establishing certain facts relative to the mine-cave situation, the findings of court make the victory the most sweeping that has yet been won by the people in the fight for surface support. The facts as found by Judge O'Neill have long been considered the crux of the legal end of the mine-cave problem, and they should do much toward helping an early solution of the entire question.

Not only does Judge O'Neill grant the injunction as prayed for, but finds that the city is entitled to 100 ft. of lateral support

on each side of the street for the first two surface veins and 1 ft. additional in support for each foot in depth of the other veins. This is what is known as the foot-for-foot rule, or the one-for-one rule. Rough estimates made allow the streets included in the bill lateral support ranging from 100 to 175 feet.

Along with other things, the decision established the constitutionality of the Davis mine-cave act, which established a city bureau of mine inspection and surface support, and required coal companies to file maps of their workings with the city authorities. The case in question was based to a large extent on the powers vested in the city by the Davis act.

Should the views of Judge O'Neill stand in the Supreme Court it will mean that in the future mine-cave suits will have a substantial basis on which to be started. The case decided was started Aug. 23, 1916, and was on trial almost continuously until December of the same year.

The retail coal dealers versus the city of Philadelphia is to be the title of the next chapter in the story of Philadelphia's coal troubles, according to Francis A. Lewis, city fuel administrator. It is stated that one of the coal dealers is about to institute proceedings against the city to recover the loss sustained by him through the coal raids.

In the opinion of Mr. Lewis everything is on the side of the complainant. The city fuel administrator explained the status of dealers who were robbed by saying: "The Act of Assembly of 1844 provides that the county must pay for property destroyed by rioters. The law was clearly upheld at the time of the Pittsburgh riot case of 1877 by Chief Justice Paxson."

During the last few weeks many cars loaded with coal were raided in Philadelphia yards of the Pennsylvania railroads. Crowds numbering as high as 1200 or 1500, equipped with bags, buckets, wash boilers and baby coaches stormed the cars and made off with anywhere from a few tons to the whole carload. Arrests were few. In most instances the police watched the proceedings without offering to interfere, and even magistrates who arraigned those who were arrested were lenient.

PENNSYLVANIA

Anthracite

Pittston—The death toll of the Barnum mine cave, which it was hoped on Jan. 7 had been averted altogether, has now been found to number two miners. Rescuers came upon the body of Steve Jarvis on Jan. 9, and Frank Ciezchski is still missing and small hope is entertained of finding him alive. The shifts of 15 men each are bending every effort to locate the missing man.

Cumbola—In line with the further development of the Schuylkill Valley coal fields, among which is the reopening of the Kaska William colliery, the Lehigh Coal and Navigation Co. is having surveys made and boreholes put down for reference in the location of other collieries, one of which will be at the eastern end of Port Carbon. This will be followed by other operations by that company and by the Delaware & Hudson Co., which owns coal lands near here. These operations will be allied with the New England & Lehigh R.R. over which the product will be hauled to market. An extension from Tamaqua, a distance of 17 miles to Pottsville, will be constructed.

Pottsville—The Philadelphia & Reading Coal and Iron Co., the largest producer of anthracite, on Jan. 10 stated in a document filed in court its intention of opening a number of new collieries and washeries in the Gilberton region. In connection with this the Harleigh Brookwood Coal Co. filed permission for the Philadelphia & Reading Coal and Iron Co. to deposit culm in the streams flowing over the Harleigh tract. Officials of the Reading Coal Co. said that a dozen collieries idle in the Shenandoah and Mahanoy City region for lack of water will resume at once.

Scranton—All owners of property overlying the area affected by the proposed operations of the Se-Rob Mining Co., engaged

at present in removing surface vein coal through a drift opening in the 100 block, driven early last fall, have prepared to institute injunction proceedings against the concern. The injunction will seek to restrain the company from mining, by means of surface processes, the recently discovered top vein of the Price-Pancoast tract.

Retreat—Mining of coal from the Susquehanna River on a large scale is a matter now occupying the attention of officials of the Central district poor board. New equipment is being bought and next spring, or as soon as the weather permits, the work of making the river give up its coal, which was started last year, will be resumed. For some years past the poor board has been mining the coal from the section of the river bed adjoining its property.

Lansford—The Lehigh Coal and Navigation Co. is erecting for its clerks, engineers and superintendents six detached and four semi-detached reinforced concrete dwellings. The houses are located on ground in the center of the town formerly occupied by a culm bank. As a departure from the old way of building all houses alike, this group will consist of five different types of houses. Each house will be situated in a lot from 40 to 45 ft. in width and 150 ft. in depth. The total cost complete, exclusive of ground of the ten dwellings, will be \$35,000.

Freeland—A fire of unknown origin was discovered in the Sandy Run mine of M. S. Kemmerer & Co., and caused considerable excitement for several hours. The flames had made great headway through one of the gangways, and the entire fire-fighting force of the colliery was called out. The company is now maintaining a close watch on the affected sections in order to prevent any fresh outbreaks from the smoldering timbers.

Honeybrook—The strippings of the A. E. Dick Co. have been closed down on account of the cold weather. Strippings and all other outside operations have been severely handicapped so far this winter.

Morea—The Morea mine of the New Boston Land Co. is the latest to discard steam for electricity. This mine has just reverted to the control of its original owners after being leased for 30 years to the C. M. Dodson Coal Co.

Beaverbrook—The A. S. Van Wickle estate has started a policy of retrenchment as its Coleraine colliery, where several assistant foremen have been put back to mining.

Bituminous

Punxsutawney—Approximately 50,000 tons of coal is being shipped to New England daily from this district as the result of an order from the fuel administrator to mine operators, commandeering a heavy percentage of their output to relieve the coal shortage in New England. The order is the largest demand made on the mine owners since the fuel administration was formed. Nearly every mine in Jefferson, Indiana, Clearfield, Armstrong and Clarion counties are affected, and many operators have been forced to cancel profitable contracts made months ago to enable them to send coal to New England at the Government price of \$2.45 net ton.

Jeneau—The Jeneau Coal Mining Co. has completed several additional miners' houses at its plant here. It is also installing a large set of boilers and an air compressor. The mine has only been opened nine months and now has a capacity of 500 tons per day.

Brislin—The Franklin Coal Mining Co., on Jan. 11 made a claim on the Pennsylvania R.R. for \$6000 damages in a complaint filed with the Public Service Commission. The action grows out of a controversy over a siding, and the claimants allege that the railroad tried to prevent the coal operators from doing business.

WEST VIRGINIA

Clarksburg—The Imperial Gas Coal Co. has made application for a sidetrack at its new operation near here. The company is preparing to put in and operate a modern mining plant. The largest cash payment to be made in a coal deal here in some time was disclosed recently when a deed was filed for record at the county clerk's office transferring approximately 300 acres of the Pittsburgh vein of coal near Lumberport from the Cambria Coal Co. to F. K. Gatch for a consideration of \$243,075.15. The cash payment acknowledged by the deed is \$176,775.15. Eleven separate tracts of the coal lying on Ten-Mile Creek and Jones Run thereof in Ten-Mile district, and three tracts aggregating about 15 acres in fee simple on Ten-Mile Creek in the same district, are covered by the deed. The property was acquired about a year ago by the Cambria Coal Co. from the Lumberport Coal Company.

The Cambria Coal Co. has completed its tippie at its Lumberport mine and started last week to load coal. This is one of the important new operations in this field in the Clarksburg district.

KENTUCKY

Whitesburg—Severe weather conditions prevailing throughout this section has delayed construction, grade work, building and opening of mines by the coal companies starting new work. Many men are out of employment as a result, and all business seriously hampered. Many carpenters and other laborers are going into the mines as a result of the long delay in outside work.

OHIO

Zanesville—According to a circular received in local railroad circles open-top coal cars are to be furnished wagon coal mines in this vicinity in the future. This will do away with the old method of furnishing box cars for the mines and will result in the loading of more coal which will greatly assist in relieving the present coal shortage.

Bellaire—The Brooks Run coal mine located on the Brooks Run pike southwest of this city, has been sold through the James L. Linard agency of this city to B. R. Sutcliffe of Shadyside. The consideration was not made public but is said to be in the neighborhood of about \$10,000. The Brooks Run Coal Co. employs about 25 men.

ILLINOIS

Harrisburg—The 25 coal mines in Saline County were idle four days during the week of Jan. 7 for lack of cars and on Saturday, Jan. 12, no cars were in sight. The mines average about 50,000 tons a day and the loss of output was therefore 200,000 tons. Five thousand miners were idle.

Pana—North Mine No. 2 of the Pana Coal Co. resumed operation a few days ago after having been abandoned since Jan. 27, 1914. It was made ready for reopening at a cost for labor and materials of \$50,000. Repairs had been in progress ten months. A cave-in at the bottom of the shaft which left a cavern 35 ft. wide and tore out 100 ft. of casing had to be repaired. New engines and equipment were installed. At full operation the mine will employ 300 men and its output will be 1600 tons daily.

Edwardsville—Simon Kellermann, Jr., explosive license agent for Madison County, has received a ruling from the Bureau of Mines at Washington that coal miners buying powder or fuses must have a license and that merchants must not under any circumstances sell without a license.

Duquoin—Thomas Holmes, general mine superintendent of the Chicago & Wilmington Coal Co., at this place, was presented by the company with a check for \$5000 on New Year's Day in recognition of his successful administration of the past year.

Marion—A suit brought by the miners of the Taylor Coal Co., operating a mine near Herrin, for neglecting to furnish the miners with a suitable washhouse was decided against the company with fine and costs. The miners contend that the tonnage of coal produced would be much heavier if the operators would show a willingness to cooperate by complying with the law.

Cartersville—The Cartersville Big Muddy Coal Co., operating a mine at Cambria, made arrangements with its miners that if the men would work on New Year's day the mining company would donate the entire output for that day to the Y. M. C. A. Fund. The miners agreed and as a result something like over \$3000 was sent to the Y. M. C. A.

Springfield—Joseph Castagno has sued the Chicago, Wilmington & Franklin Coal Co. for \$3000 for injuries alleged to have resulted from the failure of the company to mark as dangerous a part of the mine roof that was loose and rotten.

OKLAHOMA

Krebs—The Osage coal mine No. 5, was forced to close on Jan. 5 on account of damage to the large fan that supplies fresh air and draws foul air from the mine. About ten days will be required to make repairs, which must be finished before operation is resumed.

Personals

H. H. Stockett, superintendent of the Locust Mountain Coal Co. at Weston, Penn., has been made general superintendent of the Dodson interests in the anthracite field and will make his headquarters at Shenandoah.

J. F. Smith, of Knoxville, Tenn., has been given a position with the Smooth Creek Coal Co., at Roxana, Ky., as store manager and general office man. He is well known among the coal operators and retailers in east Tennessee.

P. C. Gunion has been appointed advertising manager of the Industrial Bearings Division of the Hyatt Roller Bearing Co., Newark, N. J. Mr. Gunion has been in the sales department of the Hyatt company for two years. Just previous to his recent appointment he was manager of the Pittsburgh office.

James B. Neale, of Minersville, Penn., a prominent coal operator and assistant to Fuel Administrator Garfield, was on Jan. 16 appointed by Governor Brumbaugh a justice of the peace for Foster Township, where the mines of Mr. Neale are located. No election was held in the township to fill the vacancy.

Frank Carter, formerly connected with the Smooth Creek Coal Co., at Roxana, Ky., has accepted a position as store clerk for the Red Ash Coal Co., at Red Ash, Ky. Mr. Carter was also former mine man at the plant of the Whitley Elkhorn Coal Co., at Sergeant, Ky. He is popular among coal operators in eastern Kentucky.

H. A. Cochran, general coal freight agent of the Baltimore & Ohio Railroad Co., at the request of United States Fuel Administrator Garfield has been granted a temporary leave of absence in order that he may assist G. N. Snider, transportation adviser to Dr. Garfield, in coordinating with the Director General of railroads the transportation requirements of the United States Fuel Administration.

E. B. Sutton, who has been in charge of the Federal mine-rescue station at Birmingham, Ala., for the past four years, has tendered his resignation and will enter business at Elkins, W. Va. Mr. Sutton is considered exceptionally well versed in mine-rescue work and his departure from the district is regretted. W. T. Burgess, assistant engineer, will be in charge of the local station until Mr. Sutton's successor is named.

Robert Z. Virgin, of Wheeling, W. Va., has resigned his position as superintendent of the mines of the Wheeling Steel and Iron Co. to accept a chair in the College of Mines and Mining of West Virginia University at Morgantown, W. Va. Mr. Virgin entered upon his new duties Jan. 15. Before coming with the Wheeling Steel and Iron Co. he was superintendent for the Cambria Steel Co. at Johnstown, Penn., and was identified with several mining operations in Somerset County, Pennsylvania, and West Virginia.

E. A. Holmes, a well-known coal salesman of Birmingham, has been appointed district representative of the National Fuel Administration to handle the distribution of all priority and Government business apportioned to this district. This appointment is the initial step in placing in operation the plan of distribution suggested by the coal operators' association, and will enable the district to care for priority shipments with the least possible interruption to the movement of coal to essential industries and public utilities, such order being placed with mines which are not overly burdened with the above class of business.

Obituary

William Harrison, mine examiner at the Summit Mine, near Belleville, Ill., was killed in an explosion which wrecked the municipal electric-light plant at Swansea, a Belleville suburb, last Saturday night.

Nicholas Moyer, Locust Gap, Penn., the oldest breaker foreman in the anthracite region, died, Jan. 9, aged 80 years. He was foreman at the Locust Spring colliery breaker for 40 years and declined to be placed on the pension rolls.

W. H. Thomas, a well-known operator, and president of the McDowell Coal and Coke Co., died at Bramwell, W. Va., recently at the age of 54 years. He was formerly from Columbus and engaged in operations in the Hocking Valley for 12 years.

Marce MacDonald Price, aged 48, vice president of the Hartland Collieries Co., with operations at Hartland, W. Va., died on Jan. 9 of pneumonia. Mr. Price was one of the best-known men in the coal business in the eastern part of the United States. He is survived by his widow, two brothers and two sisters.

Christopher W. Lavalley, founder and chairman of the board of directors of the Chain Belt Co., died suddenly of heart fail-

are at his home in Milwaukee on Friday, Jan. 4. In 1907 Mr. Levalley conceived the idea of driving a concrete mixer with a steel chain and using a cast semi-steel drum. These ideas were incorporated in what was known then as the Chain Belt mixer, but which name has since been changed to Rex mixer. Mr. Levalley would have been 83 years old in April had he lived. From 1891 until 1916 he was president and general manager of the Chain Belt Co. In 1916 he was elected chairman of the board of directors and held his position up to the time of his death. He was also interested in the C. O. Bartlett & Snow Co. of Cleveland, and the Federal Malleable Co. of Milwaukee.

Industrial News

York, Penn.—A number of business men, headed by J. F. Riest, F. H. Brubaker, and C. B. Yost, have bought the Louise Coal Co., with a 600-acre property in Bedford County and Fulton County, and have organized the Lenora Coal Co., with \$600,000 capital.

Buffalo, N. Y.—The Pittsburgh coal shippers, B. Nicoll & Co., who have maintained an office here for several years, have discontinued it on account of the peculiar condition of the coal business. Thomas B. Dunbar, the representative, has returned to the home office.

Cincinnati, Ohio—The Himyar Coal Corporation, of Perry County, Kentucky, has filed in the United States Circuit Court of Appeals its appeal from the judgment of the district court for eastern Kentucky awarding to Vernon Lawson, a miner, damages of \$5000 for injuries said to have been sustained while in the company's employ.

Jefferson City, Mo.—State Fuel Administrator Crossley has appointed the following to compose the State Fuel Advisory Committee: W. K. Kavanaugh, St. Louis; H. A. Buehler, Rolla; John R. Kirk, Kirksville; Houck McHenry, Jefferson City; R. T. Wood, Springfield; John T. Barker, Kansas City; Louis B. Houck, Cape Girardeau; D. R. Frampson, Moberly.

Columbus, Ohio—B. F. Nigh, secretary of the M-O-I Coal Association, in a report covering the month of December shows that a total of more than \$4300 was collected for the members through the claim bureau. This is the largest sum ever collected during one month since the establishment of the bureau. During the month a total of 41 new members were received.

Columbus, Ohio—It is estimated by figures of operators that car and labor shortage, the latter incident to the holidays, caused a loss of 600,000 tons in coal production in Ohio during the last week of December. W. D. McKinney, secretary of the Southern Ohio Coal Exchange, places the loss in the field embraced by that organization at 48.86 per cent., or 198,000 tons.

Columbus, Ohio—The purchasing agent for the Ohio Board of Administration, which controls 25 state institutions, announces for the first time in several months that operators have been offering to sell fuel to the state. One company offered tonnage in any quantity required and others offered large amounts. He regards this an indication that the situation is improving.

Columbus, Ohio—W. D. Ranney, Columbus Smoke Inspector, is having his troubles because of the poor quality of fuel used by many factories and business houses. He claims that it is impossible to enforce the rigid smoke restrictions to keep Columbus a spotless town. He further states that many Columbus factories are working 24 hours daily, which vastly increases the volume of smoke.

New Philadelphia, Ohio—The Brown Coal Mining Co. has increased its capital from \$20,000 to \$40,000.

Terre Haute, Ind.—Articles of incorporation have been filed with County Recorder John T. Grace by the Riley Coal Co. The capital stock of the company is fixed at \$10,000. The directors for the first year are Charles T. Kintz, James Drum and Pius F. Kintz, all of Vigo County. The principal place of business of the firm will be Terre Haute.

Raton, N. M.—The Superior Coal Co., of Raton, N. M., is in the market for a second-hand storage-battery locomotive, with a dozen nickel-iron batteries, preferably Jeffrey make.

Belle Vernon, Penn.—Government agents, continuing their drive against coal men charged with profiteering, arrested Joseph W. Vance and E. F. Wilson, coal operators in Fayette County, trading as Vance & Wilson. They were released in \$1000 bail for a hearing. There are now seven coal operators and brokers of this vicinity charged with profiteering, and at least eight more arrests are expected.

St. Louis, Mo.—The fourth annual banquet and entertainment of the St. Louis Coal Club was held last Monday night, at the American Annex Hotel. Lieut. Gov. Wallace Crossley, Missouri fuel administrator, spoke on "War and Coal." John P. Reese, vice president and general manager of the Superior Coal Co., spoke on "The Relation of Government-Controlled Railroads to the Coal Industry."

St. Louis, Mo.—Plans for four towboats and 24 barges to be built for the Government at a cost of \$3,360,000 and operated on the Mississippi River between St. Louis and St. Paul, have been prepared in the office of the United States Engineers here. Bids will be opened the latter part of this month and construction will be rushed. The barges have been designed to carry coal, ore, steel, cement, lumber and oil. They will be 300 ft. long, 48 ft.-beam and 10 ft. depth.

Pittsburgh, Penn.—What is believed to be a move by the stockholders of the First National Bank of Uniontown to regain control of the institution of which Josiah V. Thompson was the president, was made in the United States District Court on Jan. 11 when former Judge Robert E. Umbell, representing creditors and stockholders, asked the court to set aside the order granting John H. Strawn, receiver, power to sell the real and personal property of the bank.

St. Louis, Mo.—Reports that efforts were being made to have St. Louis and Missouri placed in the Chicago fuel district raised a storm of protest, and Fuel Administrator Crossley of Missouri and Chairman Nims and C. E. Morrow of the St. Louis Fuel Committee hurried to Washington to resist such action. The Chamber of Commerce took a hand and Mayor Kiel sent a telegram of protest. Word came from Washington that the opposition would prevent the carrying out of the plan.

Huntingdon, Penn.—Twelve carloads of bituminous coal from the Huntingdon and Broad Top R.R. siding here was seized on Jan. 7, by E. M. Greene county fuel administrator, to relieve the shortage in Huntingdon County. More than 1000 loaded cars are now said to be on sidings of the Huntingdon and Broad Top R.R. and the accumulation is constantly increasing while it is waiting for the Pennsylvania R.R. to take over its shipments to New England and other parts of the East.

Clayton, Mo.—Chairman Hodgdon, of the St. Louis County fuel committee, at a meeting of 75 coal dealers of the county warned them revocation of license would be the penalty for failure to make daily reports. After the meeting the dealers organized the St. Louis County Fuel Dealers' Association. The association will ask the Government to put into effect as quickly as possible a uniform freight rate in the county. They complain that one road is charging 75c. for switching a ton of coal two miles.

Pittsburgh, Penn.—Notwithstanding the statements by many Government officials to the contrary, there has not been a great deal of improvement in the coal-car or coal situation in this district. The extremely cold weather is probably responsible for a considerable part of the condition. The rivers are frozen solid and river loading out of the question.

The Baltimore & Ohio mines in Somerset County have been particularly short of cars, except some that have been getting some western Maryland cars.

St. Louis, Mo.—Payment of dividends aggregating \$40,000 in six months by the new Staunton Coal Co., of Livingston, Ill., to the Mercantile Trust Co., of St. Louis, on the \$50,000 stock in the company held by the estate of George Lincoln Sands has been brought into question by proceedings begun in the Circuit Court at Edwardsville, Ill., by Public Administrator Frank B. Sanders of Madison County. He contends that the dividends on the stock of an Illinois mine should have been retained in Illinois for the payment of creditors and for settlement of the inheritance tax.

Cincinnati, Ohio—The Matthew Addy Co., of Cincinnati, sued by J. A. Hinchey and others, doing business as the Gem

Collieries Co., has filed its answer in the United States District Court, denying the allegation that it delivered contract coal intended for delivery to plaintiffs at Chicago and sold it in the open market. The Addy company admits the agency connection, but charges that the plaintiffs themselves broke the contract, and failed to supply coal contracted for, causing actual cash damage of \$1775, and additional damage to the company's good will amounting to \$10,000, for which judgment is asked.

Clayton, Mo.—Sam D. Hodgdon, chairman of the St. Louis County fuel committee, will recommend to the Fuel Administration that railroads be forced to pay the same demurrage for shipments of coal detained by them that is charged consignees. The State Public Service Commission recently promulgated an order increasing demurrage charges, effective Jan. 21, as follows: After 48 hours, first day \$3, second day \$4 and each additional day \$1 until the demurrage reaches \$10 a day. Hodgdon asserts that nineteen cars have been standing on tracks near University City for eight days and that several cars have been at Kirkwood seven days.

St. Charles, Mo.—Prices fixed by R. M. Thomson, chairman of the St. Charles County fuel committee, approved by State Administrator Crossley, are as follows: Illinois, group No. 1, including Belleville, Freeburg, Coulterville, Glen Carbon, Litchfield, Logan, Marissa, Mount Olive, New Athens, Pinckneyville, St. Clair, Tilden, Wilderman and Winkle, \$5.50 a ton delivered; group No. 2, including Duquoin, Paradise and Sunfield, \$5.55; group No. 3, including Murphysboro district, \$5.62; group No. 4, including Benton, Carterville, DeSoto, Eldorado, Gallatin, Marion and West Frankfort, \$5.65. The prices for St. Charles County have not been determined.

Birmingham, Ala.—Announcement is made of the acquisition by G. H. Stevenson and associates, of Bessemer, Ala., of the Bamford mine, located in Shelby County, about 21 miles south of Birmingham on the Southern Ry. This is a slope opening on the Gould seam of coal and has not been operated for a number of years. The deal covers about eighty acres of fee simple coal lands and all plant and mine equipment. It is understood the new owners will resume operations at the mine as soon as the necessary rehabilitation has been completed. Options are reported to have been taken on the adjoining eighty acres of coal lands by the Bessemer Coal, Iron and Land Company.

Baltimore, Md.—Directors of the Consolidation Coal Co. at their regular meeting on Jan. 11 cut a melon for the stockholders in the shape of an extra dividend of 3 per cent. The regular quarterly dividend of 1½ per cent was also declared payable Jan. 21, to stockholders of record on the 22d. The extra is payable Feb. 11 to shareholders of record at the close of business Feb. 1.

No statement of earnings was issued at the conclusion of the meeting. It is generally known, however, that earnings for year were highly satisfactory. The company would have shown a big increase in coal production at its mines in West Virginia, Maryland and Kentucky had the car situation to the mines been adequate. The Consolidation, however, like other companies suffered from a car shortage.

Columbus, Ohio—The Coal Shippers' Terminal Pool Association, which is now in operation in most of the large centers of population in the Middle States, has adopted a system of classification of various grades of coal which is set forth in a pamphlet. Only three grades of coal are recognized by the pool managers—namely, lump, mine-run and screenings. Pittsburgh No. 8 vein and the Cambridge district are placed in one classification. Another classification is given to the Middle District in Ohio, Coshocton and Bergholtz. Another is given to Deerfield and Massillon districts and another to the Hocking Valley, both thick and thin vein and Pomeroy Bend. Separate pool numbers are given to Jackson, No. 8 stripping, and wagon mines. West Virginia grades are divided as follows: Pocahontas and New River in one classification; Fairmont steam and domestic in another classification and separate pool numbers are given to Fairmont gas, Kanawha steam and domestic, Kanawha gas, Logan County steam and domestic, Logan County gas and smelting. Classifications are also made for western Pennsylvania and Kentucky grades.

MARKET DEPARTMENT

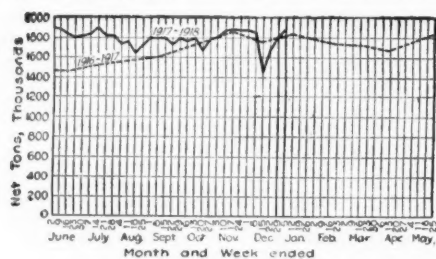
GENERAL REVIEW

Cold wave sweeps country, interfering greatly with transportation, increasing coal consumption and decreasing receipts. Shortage most pronounced in the East, while certain Western localities appear to be fairly well supplied.

A cold wave—the coldest for the season in many years—descended on the country, particularly the region west of the Allegheny Mountains during the week under review. The low temperatures were accompanied with high winds and in some localities heavy snows. This tied up railroad transportation to a considerable degree, and while causing an increased consumption, particularly of domestic fuel, rendered receipts much lighter than normal. The suffering in some localities was intense. Along the Atlantic seaboard in particular the movement of coal was considerably hampered by ice in the rivers and harbors. Baltimore, New York and Boston have been and are still suffering in no small degree from this cause, while Hampton Roads is not without its troubles of a similar nature. Of course, the cold weather exerted an adverse effect on production, and many mines worked only part time, and in many cases only partly manned because of the storm. Conditions in New England, while probably no better, or but slightly so, than a week or two ago, are probably no worse. The priority order granted this territory of 500 cars per day of bituminous coal is certain to have its effect sooner or later, but this effect can not be expected immediately. On the other hand, it is believed in some quarters that the diverting of this coal to New England will adversely affect industries in New York, Pennsylvania and some of the other Eastern states, and considerable protest is heard concerning it. It would appear that domestic shortage has been in many instances considerably relieved. In some localities, however, added inconvenience and no small amount of suffering was caused by the severe weather conditions. The improvement in transportation, which was being shown in some of the coal producing districts was, of course, nullified by the cold wave. It is believed, however, that as soon as the weather moderates for any length of time the transportation tangle can be largely straightened out, and this will doubtless, at least in large measure, relieve the present stringency. The drastic rulings of the Fuel Administration concerning coalless days may also exert a more or less potent influence in this direction.

COAL PRODUCTION

The production of soft coal during New Year's week is estimated as 9,236,000 net tons, an increase over the week of Christmas of 322,415 tons, or 3.6 per cent. The average production per working day was 1,847,000 tons. If allowance be made for the holiday, the rate of production has thus returned almost to the level of early December, before the severe weather began to impede operations. The total production



of beehive coke during the week ended Jan. 5, is estimated as 515,000 tons, an average per working day of 103,000 tons. Preliminary estimates place the production of beehive coke in 1917 at 34,000,000 net tons, a decrease of 1,460,000 tons, or 4.1 per cent., when compared with the production for 1916. Shipments of anthracite reported by the nine carriers amounted to 27,517 cars, as compared with 36,083 cars during the week before Christmas. Losses in output due to observance of the holidays appear to have been larger in the anthracite industry than in either bituminous mining or coke manufacture.

CARLOADS OF COAL AND COKE ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS WEEK ENDED:

	Dec. 15	Dec. 22	Dec. 29	Jan. 5
Bituminous shipments, 114 roads...	149,122	177,599	158,596*	164,345†
Anthracite shipments, 9 roads...	31,672	36,083	29,476*	27,517†
Beehive coke shipments, 4 roads...	10,335	11,835	10,211*	10,572†

* Revised from last report. † Subject to revision.

Atlantic Seaboard

BOSTON

"Non-essential" industries shut down in large numbers. Shipments of bituminous diverted to hospitals, pumping stations, and to some extent for household use. Railroads and power companies on narrow margins of supply. Emergency deliveries in sight and probably not sufficient to keep war order plants running, except possibly those rated 100 per cent. No bunker coal in Boston and ship departures delayed. Schools still closed. Expected another week will disclose much additional suffering.

Bituminous—New England people are now fully alive to the coal famine. The fact that the fuel administration has been able to get emergency shipments has encouraged hundreds of steam-users to apply for the relief that on account of the extraordinary situation can be had only in sparing amounts. The prolonged cold spell beginning near the end of December almost completely tied up coastwise shipping and when to this is added the long delays in dumping coal at the piers and the extreme slowness with which all-rail shipments are coming through it can be seen how critical the situation is. There have been periods before when transportation has been delayed, but never has there been a time when in proportion there was so little fuel in reserve. Large mills that are accustomed to carry heavy stocks accumulated during the summer have been facing the winter with coal for only a few weeks, and now in many cases have had to shut down until coal can be had in sufficient volume to permit steady operation. The mill situation in Fall River is particularly serious. The American Printing Co. plants and other large textiles have had to close, throwing out of employment several thousand hands.

The railroads, in particular, are running on much smaller reserves than in ordinary times would be considered safe, and already there have been several instances of seizure for locomotive supply. The power given state fuel administrators also to commandeer coal in transit adds another uncertainty to the consumer who is dependent upon coal en route to keep him in business. On Jan. 10, 120 cars of bituminous were seized by the New England Fuel Administrator for the relief of Boston and Lynn where retailers were without enough coal to heat the hospitals and pumping stations over Sunday, not to speak of heating apartment houses and public buildings. The schools in most of the cities have not yet reopened, nor are they likely to until coal arrives in far greater volume than at this writing.

Of the emergency cargoes started for New England but two have thus far reached destination, the "Achilles" 12,777 tons, and the "Newton" about 7400 tons. This coal was carefully apportioned by the fuel administration, almost every part of New England being represented in the consignments. Coal was sent from these ships far into Maine, New Hampshire and Vermont, for hospitals and for other imperative needs, as well as to Rhode Island for hospital use there. The "Achilles" was diverted from a Panama R.R. consignment, and the "Newton" brought some of the coal that was diverted from Western consignees at one of the congested railroad points. The latter ship was stuck in the ice in the Chesapeake 10 mi. or so south of Baltimore and delayed two or three days.

Six barges are en route for the fuel administration, but the aggregate tonnage is only 10,000 and movement is so slow their

early arrival cannot be relied upon. There are steamers, however, that will be coming along and will help supply the more immediate requirements. The arrival of cargoes for account of the usual wholesale factors will help the most, however, and a week of good enough weather to permit the dispatch of such cargoes is sorely needed. It should be stated that more than 100 bottoms are still waiting at Hampton Roads for coal.

Anthracite—For 10 days practically the only supply of domestic sizes reaching this market have been in trains rushed from the mines to meet the emergency. At least one train-load has been diverted from Camp Devens, and direct from several of the operating companies have come solid train-loads for distribution from points like New Haven, Worcester, Providence, and Boston.

The hard coal famine is certainly acute and cannot possibly be met by such waterborne cargoes as are likely to be shipped. The New England Fuel Administration has at least one steamer, 3500 tons, which is due in Boston during the current week.

Regulations have been put forth limiting the hours during which business establishments, theaters, and other buildings may be open. Saloons are not to open until 9 A.M. and are to close at 10 P.M. and several other drastic rules have been made by the fuel authorities, all in the effort to promote economy in the use of coal.

NEW YORK

Demand for anthracite continues heavy with supplies scarce. Fuel authorities work hard to relieve situation. Appeals made for more coal and local coalmen appear before the Washington authorities. New England gets percentage of local receipts although situation there is not believed to be as desperate as local needs. Harbor crowded with ships.

Anthracite—That the district dependent upon this market for its supply of anthracite has not experienced the worst fuel famine in its history can be attributed entirely to weather conditions. These while not at all mild, were considerably better than they have been and permitted a reasonably good movement of coal. While those in charge have put forth their best efforts to secure sufficient coal for the daily requirements of the market and have partially succeeded, the supplies have been far short of the demand and the outlook is not at all promising notwithstanding the hopes held out.

Even though the reports issued by the various agencies show that there are many thousand tons of coal at the various loading terminals on the New Jersey side of the river and bay, they mean little to those dependent upon getting coal when it is impossible to move it across the water because of the heavy ice floes which have hindered shipping greatly the past week.

In their petition protesting against an order closing the theater and moving picture houses, the theatrical managers state that if the 118 foremost places are closed the saving in coal will amount to less than 163 tons of coal a day while the Government will lose about \$11,800 in taxes for each day's closing.

The shortage of fuel has resulted in an almost general closing of schools in Brooklyn. Owing to a decided difference in the prices submitted by the Brooklyn and Manhattan retail dealers for furnishing and delivering coal for the schools in their respective boroughs, the Board of Education did not close contracts for the full requirements for the Brooklyn schools with the result that there are comparatively few of the schools in that borough now open.

Considerable coal has been lost as a result of the heavy ice breaking the barges and causing them to sink.

Existing conditions are driving the gas companies to their maximum capacity, the daily output showing an average daily increase in consumption of about 30,000,000 cu. ft. over normal conditions. The Astoria Coal and Coke Co., a subsidiary of the Consolidated Gas Co. has disposed of many thousand bushels of coke at its plants, each customer being limited to one bushel.

In the wholesale district there are no immediate prospects held out. Most of the

dealers are without supplies and some say they do not know when they will have any. Their offices are continually visited by retail dealers who want coal. All of the domestic sizes are scarce, pea being as hard to get as any other. The steam coals are tightening and the down town office buildings are saving heat wherever possible.

The retail situation is serious. Few if any of the dealers have coal in their yards, invariably delivering direct from the barges to the customers' bins or else taking a load to the yard and selling it direct to customers who carry it home in every sort of receptacle.

Current quotations, per gross tons, f.o.b. Tidewater, at the lower ports are as follows:

	Circular	Individual
Broken.....	\$6.30	\$7.05
Egg.....	6.20	6.95
Stove.....	6.45	7.20
Chestnut.....	6.55	7.30
Pea.....	5.05	5.80
Buck.....	4.30@5.00	5.50@6.00
Rice.....	3.75@3.95	4.50@5.00
Barley.....	3.25@3.50	3.50@4.00
Boiler.....	3.50@3.75	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—A delegation from the Wholesale Coal Trade Association of New York journeyed to Washington the latter part of the week in an effort to obtain certain concessions for the trade. W. A. Marshall and C. C. Marshall, members of the delegation and directors of the association were witnesses before the Senate Committee investigating the coal situation after which the delegation were granted an audience by Fuel Administrator Garfield. On Tuesday of this week many members of the association with others who are not members went to Philadelphia to attend a meeting of the operators association at which vital matters affecting the trade, such as the installation of a zoning system and the distribution of central Pennsylvania coals were discussed.

The local situation continues serious. Supplies are short and while large quantities of coal are reported as arriving at this Tidewater much of it is used in supplying vessels with bunkering fuel. Frequently inability to secure fuel at this harbor has caused ships to go to the Southern ports, secure their fuel supply and then return here for their freight cargo. This has been the case within the past week. While reports show the arrival of large tonnages of bituminous coal at the loading terminals, the diversion of about one-fourth of the receipts to New England and the tonnage required for bunkers leaves comparatively little for local consumption.

Late Wednesday night the national fuel administration made public drastic regulations calling for five coalless days, Jan. 18-22, inclusive, and every Monday thereafter until Mar. 25. This regulatory measure, applies to all the country west of the Mississippi, and promptly met with a storm of protest. If this ruling is enforced, it may tend to clean up congestion on the railroads, but will cause the loss of immense sums in wages, etc.

Demand for bituminous has increased with the decreased anthracite supply and while the city ordinances forbid the use of bituminous except under restrictive conditions, the ordinances are being practically ignored during the present emergency the city using bituminous coal whenever anthracite is not available.

The local fuel administrators have let it be known that New York shall not be discriminated against in the placing of orders curtailing consumption of coal and that because New York supplies about 15,000 tons of coal a day to ships it is no reason why its industries shall be shut down while other Atlantic cities are excepted. It was the belief here that the New England situation was less desperate than New York's and that more coal should be diverted to this port to relieve local conditions.

PHILADELPHIA

Anthracite extremely short. Cold weather returns. Bituminous production critically short. Car supply again poor. Interesting contract situation.

Anthracite—After experiencing a comparatively mild spell of weather, zero conditions have once more returned and the wild scramble for coal is being repeated. As a consequence the city experienced another exciting coal week, but one would find it difficult, though, to judge actual conditions from the daily press. Early in the week the newspapers said there was so much coal en route to the city that all danger had passed. When the coal did not arrive there was another great scare, and

reports of all kinds of altercations with the coal administration appeared.

There has been much discontent recently among the local operators because coal has been moved in immense quantities to New England, while Pennsylvania, with its extensive munition plants and other essential industries is in such dire need. They feel it is a rank injustice on the part of the national authorities directing that 500 cars a day be sent into the above territory. In addition it was reported that 750 cars had been seized in a single day west of Harrisburg and diverted to New England.

Probably the most striking incident of the week was the advance of 75c. a ton in the prices of the M. A. Hanna Co., successors to the Susquehanna Coal Co. Prior to Jan. 9 this company had been marketing its product at the company prices. This company is now classed as an individual shipper, and the officers claim it was an oversight that they had ever been listed otherwise by the Government. Customers were asked to signify their desire as to continuance of shipments under the new schedule. Of course, everybody asked that their orders should be kept intact regardless of price.

The steam coal trade has tightened up noticeably and among the individual shippers the prevailing price for buckwheat is \$4.15, while \$3.50 can be had for rice and barley, even. Cullm has assumed greater activity than ever and while heretofore it has been necessary for the shippers of this material to conduct a campaign of education to induce manufacturers to use it, orders now frequently come unsolicited, with most sales still made around \$1.25@1.50.

The prices per gross ton f.o.b. cars at mines for line shipments and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken.....	\$5.90	\$6.05	Buck.....	\$3.15	\$3.75
Egg.....	4.80	6.00	Rice.....	2.65	3.65
Stove.....	5.05	6.35	Boiler.....	2.45	3.55
Nut.....	5.15	6.40	Barley.....	2.15	2.40
Pea.....	3.75	4.65			

Bituminous—The outlook for increased bituminous production is far from encouraging. It is true that early in the week the car supply was greatly improved and it began to look as though Government control was about to develop the promised relief, but the supply immediately fell off and is now almost as bad as ever. The central Pennsylvania mines report being closed in numerous instances 50 per cent. of the working time, while from the Fairmont district the report on one particular day, which is said to be a fair average for the week, was that 68 mines out of a total of 139 were shut down from the same cause. With the few cars that are being received the miners are loading them to their capacity and beyond.

The contract situation is an interesting one, since all agreements must now be approved by the Government and executed at the fixed price of \$2.45 per net ton. There is a lack of willingness on the part of the operators to enter into new agreements, while consumers hesitate to have their contract scrutinized in this way for fear of losing their entire supply on account of being in a non-essential line. In the meanwhile most shippers have notified their customers they will use their best efforts to take care of them at the fixed price.

BALTIMORE

Fuel situation here continues desperate, with industries at times down to a few hours' supply. Hard coal practically out of the market in many sections.

Bituminous—When a big city sees its important industries and public service corporations at times with but a few hours' supply of fuel on hand, when it sees even its high pressure fire service several times without enough coal to keep running 12 hours, when apartment houses, homes and even big hospitals went without fuel for hours, the desperation of the fuel situation is forced home. With cold weather here in earnest the demand for fuel became the more insistent. Only the efforts of the local fuel administrator, who the week before had diverted 200 cars of soft coal from the pier accumulation to domestic needs here, saved the situation for a time, and again the past week 100 cars were diverted at Brunswick and distributed to urgent cases. One of the largest hospitals that had been without heat or light was taken care of therefrom, as was the fire service.

Anthracite—Hard coal shipments here are absolutely inadequate to meet even the urgent demands. The fuel administrator has advised domestic consumers to turn to soft coal for relief, but even that is hard to get. The administrator admits that there is little hope of hard coal relief in the near future.

The small supplies reaching here are being distributed grudgingly in half ton, or even bushel lots, to the most urgent cases. After the failure of hard coal supplies in many sections, soft coal depots were opened in a number of school yards where coal was sold at 18c. a bushel to prevent many poor families from actually freezing in their homes.

Lake Markets

PITTSBURGH

Improvement in transportation set back by blizzard. Mill supplies fair.

Coal operators continue to insist that the whole matter of coal supply resolves itself into a question of transportation. Conditions in this respect improved somewhat towards the close of last week, but the blizzard in the central West Saturday froze up the railroads badly, interrupting even passenger service, and while the weather has been moderating recently the net result is no improvement in the week. Such improvement as occurred last week was due to the railroads declaring general embargoes against the receipt of freight, a few commodities being excepted, including coal.

Local supplies are only fair, but the city is handicapped by the fact that normally it receives considerable coal by water, and the Monongahela River has been frozen over for about a fortnight. The Pennsylvania and Continental pipe works, which use river coal, are closed entirely, and some other mills have run short. In the Mahoning and Shenango valleys the mills have been getting slightly better coal supplies, and the bessemer department of the Republic Iron and Steel Co., which was idle for three weeks from lack of coal, has been in operation since Jan. 2.

Arrests continue of coal operators and dealers on charge of violating the rules under the Lever act, and there is no intimation as to how much farther the authorities intend to proceed. Most of those arrested are held for the March term of the United States Court at Erie.

Only occasional lots of free coal can be picked up in the market but it is believed that offerings will be decidedly heavier as soon as production increases, as a moderate volume of contract business ran out with the old year. The market remains quotable at \$2.20 for slack, \$2.45 for mine-run and \$2.70 for screened, per net ton at mine. Pittsburgh district, with 15c. permitted to be added in the case of sales by jobbers.

BUFFALO

Situation steadily growing worse. Must come to a climax before the effects of the late storm are worked off. Bituminous scarcer than anthracite. Coal moves in preference to passenger trains.

Bituminous—The worst seems to be close at hand now. Nobody expects to be able to escape the consequences of the storm of the 13th, which hit Buffalo especially hard from the fact that this section was visited by an 84-mile gale, added to temperature below zero. It was the gale that did the mischief, tying up trains and other business as even deep snow would not. If the heavy snow fall promised had taken place the city would have collapsed. As it was the weather held back even the anthracite trains, so that about two days were lost, with every consumer burning all the coal he could get.

Coal shippers and large consumers are up in arms on account of the order from the fuel administration, diverting coal from such roads as the Buffalo, Rochester & Pittsburgh and the Buffalo & Susquehanna, naturally tributary to Buffalo and sending it to New England. A large delegation went to Washington to protest, but no great amount of satisfaction appears to have been obtained. Some of the complainants refused to say anything on their return.

There is intimation now that the fuel authorities will advance the bituminous prices soon, but till then the regulation prices remain as follows, per net ton f.o.b. Buffalo:

	Slack	Lump
Pittsburgh.....	\$3.75	\$4.25
Bessemer.....	3.80	4.20
Allegheny Valley.....	3.70	4.10

Anthracite—The great storm, though mostly snowless, has tied up the train and city service so that deliveries are again slow. But it is promised that the trains stalled on the way will be rushed in and the lead on consumption held. This city is so near the mines that delivery is a matter of but a day or two at the worst, unless unforeseen and unavoidable delays are suffered.

The complaint of no coal is now aggravated by the running short of natural gas, which always deserts the consumer when it is most wanted. This is now a matter of so small supply that all sorts of shifts have to be made to get on till moderate weather returns. And all this when we had every reason to expect a mild winter, since we had had two hard ones in succession. Canadian retailers through the city, but it is small comfort that can be afforded them.

TORONTO

Coal situation much improved by arrival of large shipments. Railway embargo raised. Dealers resume taking orders. City fuel depots discontinue business.

The coal famine which was severely felt during the bitterly cold weather of the first week of January was relieved by the arrival of large shipments of coal on the 5th and subsequent days followed by considerably milder weather. The raising of the embargo placed by the N. Y. Central on shipments of coal via the Michigan Central has resulted in partially overcoming the congestion at Black Rock. Dealers have resumed taking orders and are making deliveries in ton and half-ton lots. The city fuel depots are filling the orders booked but now that the emergency is over will take no more.

Quotations for best grades per short ton are as follows: Retail, anthracite egg, stove, nut and grate, \$9.85; pea, \$8.85; bituminous steam, \$9; slack, \$8 to \$8.50; domestic lump, \$10; cannel, \$11. Wholesale f.o.b. cars at destination. Three-quarter lump, \$7 to \$7.50; slack, \$6.85 to \$7.

DETROIT

Temperature 16 deg. below zero early in the week increases hardship of domestic consumers without coal. Citizens urge state and local fuel administrators to take more decisive action.

Bituminous—Further serious complications have been injected into the local coal situation by a blizzard with a 60-mile gale and temperatures dropping as low as 16 deg. below zero. Heavy snowfall, heaped into heavy drifts Saturday and Sunday, completely disorganized transportation schedules, causing serious curtailment of receipts of coal from all districts. With a large proportion of the domestic consumers being carried along on temporary and small allotments and no reserves at hand from which to draw, while the severity of the weather necessitated increased consumption, the effect of the storm was to aggravate severely the troubles of those without coal supply.

Owing to the extremely cold weather drivers for retail coal yards practically discontinued deliveries Saturday and Sunday. More than 600 applications for fuel were received Saturday by the police department which is handling distribution for the local coal administrator. With some 1600 applications previously booked and several hundred added Sunday, the storm left the department a stupendous volume of applications and but little coal, with which to supply them.

For several days preceding the storm, inbound shipments of bituminous coal maintained a volume of about 700 cars a day, but the absence of the usual reserves transformed these shipments into merely a day-to-day supply.

Anthracite—Very limited quantities of anthracite were finding their way into the city before the blizzard, but the supply, which was then inadequate, has been largely interrupted as the result of subsequent transportation troubles. Many domestic consumers, whose heating plants are constructed for use of anthracite have been unable to obtain hard coal and have been attempting to substitute bituminous, with only partial success.

Hopes are still centered on action by the Federal fuel administrator and the director general of railroads, which it is believed is the only thing that will alleviate present suffering and prevent even greater hardships in the near future. Many industrial plants are facing the probable necessity of having to suspend work within the next few days.

COLUMBUS

The continued cold weather has caused a rush of orders for both domestic and steam grades. The situation in Ohio is improving slowly, contingent upon milder weather soon. Little actual suffering reported.

Zero temperatures, coupled with strong winds, have been playing an important part in the coal trade in Ohio during the past week. Demand from domestic users is strong and urgent calls are received by the Ohio Fuel Administration from every part of the state. Available supplies are apparently sufficient for the present but with cold weather continuing with accompanying bad effect on railroad transporta-

tion, it is doubtful if the situation can be maintained as at present.

Retail stocks are small, but valiant work by county committees and railroad traffic managers has kept the supply equal to the necessary demand. Dealers are still following the policy of only delivering a small load to each consumer. The icy condition of the streets has hampered deliveries and many consumers are hauling their own supply, which can be secured at almost all yards. Schools and hospitals are now pretty well supplied with a small stock, but none have been able to accumulate fuel. Few cases of actual suffering have been reported, but that condition is not far off if the present low temperatures continue. One of the best features is the fact that the natural gas pressure has been fairly good in all places where it is generally used as domestic fuel.

The steam business is as strenuous as the domestic trade. Many steam plants have been compelled to curtail operations because of lack of fuel. This is especially true of factories engaged in manufacturing what is styled non-essentials. Few steam plants have been able to accumulate a surplus of fuel.

The transportation on certain roads has been improved. This is especially true of the Hocking Valley, which has been giving a good car supply. Other roads such as the T. & O. C. and the K. & M. are not well equipped with cars and mines on those lines are curtailed in their production. In eastern Ohio the output has been estimated at 65 per cent. Massillon and Cambridge produced about the same amount. In other districts the output is estimated at 75 to 80 per cent. of normal.

Prices on short tons f.o.b. mines are as follows:

	Hock- ing	Pom- eroy	Eastern Ohio
Sized grades	\$2.70	\$3.05	\$2.70
Mine-run	2.45	2.70	2.45
Screenings	2.20	2.45	2.20

CINCINNATI

The coldest weather of the winter, with a heavy snowfall, has increased distress and emphasized the continued coal shortage and the transportation tangle. Relief is sporadic and inadequate.

The vigorous but relatively unsuccessful efforts of state, Federal and local authorities, coal operators and distributors and the railroads, all working together, to relieve the dangerous coal shortage existing here and all through Ohio, were virtually brought to naught by a blizzard on Friday night and Saturday, accompanied by a sudden drop of 40 deg. or more in temperature, from around 30 deg. above to 10 below zero. Some points in this vicinity reported unofficially that temperatures as low as 24 deg. below had been experienced.

The weather was much the most severe of the winter, although the storm was in general a striking parallel to that of a month ago. The same general results followed in the shape of increasing difficulty of moving trains carrying coal, as well as other commodities, in the face of an enormous increase in demand for fuel, as the case always is when sudden severe cold occurs. This time, however, the bad weather of the entire month of December and of early January had exhausted all available supplies of coal, and there had in the interim been no opportunity to accumulate reserves, served to make the situation even more distressing than formerly.

Every effort is being made to take care of the public so as to prevent suffering, but the simple fact is that there is not enough coal to go around, even with many factories and other large consumers shut down.

BIRMINGHAM

Low temperatures intensify shortage and at same time cripple production. Field representative appointed by fuel administration to handle district distribution.

On account of the lowest temperatures for many years, prevailing throughout the South for several days the past week, zero weather being recorded in Birmingham and vicinity, the domestic coal situation again became grave and resulted in much suffering. Locally, practically every dealer received increased shipments over previous weeks, but on account of the frozen and slippery condition of thoroughfares deliveries were greatly handicapped and in many cases it was impossible for householders to secure drays or any other conveyance by which they could get the coal from the yards to their homes.

Cities and towns throughout the state reported empty yards, but through the

efforts of the state fuel administrator and Governor Henderson temporary supplies were arranged for all sections where suffering was reported, and while the shortage was more keenly felt than at any previous time this winter, less difficulty was experienced in diverting coal to points where the shortage was critical, than heretofore. Coal was reported seized in the railroad yards at Huntsville, and this method of relief was doubtless adopted in other localities.

Industrial plants and public utilities continue to operate on low margins of supply of steam coal. Public schools in a number of cities and towns have temporarily suspended in order to conserve the fuel supply. The steam situation is just as bad or worse than the domestic, but of course the human element in the latter causes it to take precedence when weather conditions are severe.

The appointment of E. A. Holmes, a local coal salesman, to direct the distribution of the district fuel supply has met with the hearty approbation of coal men and is considered the most important and far-reaching step yet taken by the fuel administration in systematizing the distribution of coal and the allotment of priority orders, which will be in the hands of one thoroughly familiar with conditions at the mines throughout the district, who can place such business with producers who can handle it with the least delay and confusion.

Operations were handicapped probably 50 per cent. by the cold weather Saturday and not more than half crews reported at the mines which attempted to operate. Some were idle throughout the day. Various interruptions were caused by weather conditions, power lines being down, pipe lines frozen up and cars difficult to move under chutes for loading. The output, for the above reasons, was seriously curtailed.

Coke

CONNELLSVILLE

Traffic conditions worse on account of blizzard. Executive committee appointed. Transportation the desideratum.

Car supplies to coke works improved somewhat towards the close of last week, but thus far this week have been very poor, reflecting the influence of the blizzard Saturday. Production is expected to be light all week.

Blast furnaces have had slightly heavier receipts of coke in the past few days, evidently a result of the drastic action taken by practically all the railroads involved in the coke trade, in placing embargoes on the receipt of nearly all freight, coke being one of the exceptions. The object is to clear up the congestion on the theory that if a good start can be made a more regular movement is assured.

The committee of seven appointed at the meeting at Uniontown Jan. 3 between Warren S. Blauvelt, national coke administrator, and the Conneltsville coke producers, has appointed three members as an executive committee, to act directly with the Fuel Administration, this committee being: Charles Lenhart, vice president of the Producers' Coke Co.; John Jamison, of the Jamison Coal and Coke Co., and R. M. Fry of the Orient Coke Co. This committee is now trying to formulate a plan of action.

The "Courier" reports production in the Conneltsville and lower Conneltsville region in the week ended Jan. 5 at 216,098 tons, a decrease of 35,300 tons, and shipments at 215,665 tons, a decrease of 39,414 tons.

Buffalo—The local coke consumers have found it hard to get a full supply, but they had good contracts and have depended on them. How long the supply will keep up is unknown, but shippers say that the end of February ought to see the situation easier. The severe winter has tied up railroads everywhere and so far Government management and the taking off of passenger trains has not had any visible effect, especially as any improvement would be counteracted by the weather and the congestion of all trains.

Middle Western

GENERAL REVIEW

Mines and railroad traffic, passenger as well as freight tied up, because of severe storm.

The most severe storm that has been known for years, struck the Middle West-

ern section Friday morning, and raged in all furiousness for 48 hours. Railroad traffic is at this writing at a standstill, and coal mines idle. Hundreds of trains are tied up, unable to move because of the need of motive power. Passenger-train schedules were abandoned, with little prospect of regular resumption for several hours. No attempt was made by coal operators to run their mines Saturday, and they were content to keep their steam pipes in a condition so as not to freeze.

The storm coming from a southwestern direction—which is unusual—caused the thermometer to drop from 25 above to 10 and 15 below in less than 24 hours. The extent and severity of the suffering will not be known for some time. With snow and zero weather all over the Mid-Western section accompanied by a wind that has the velocity of a gale, with telephone and telegraph service paralyzed, it is difficult, in fact impossible, to get the details, such as are needed to make a correct and intelligent report of the exact situation throughout the territory. However enough data have been gathered to warrant the conclusion that the present storm has not had its equal for years. The railroads had just about resumed normal traffic conditions—after several days' battling with the heaviest snow for 15 years—and the present snowfall will tie up coal mines, no doubt for several days.

Dealers that are fortunate enough to have coal on hand cannot make deliveries, because no men are reporting for work, and coal in terminal yards will be worthless to the trade until the railroads can recover to the extent of making deliveries. The first four days of the past week found the railroads with a better car supply than for several weeks past and production was increasing nicely. Had the climatic conditions remained favorable, the past week production would have exceeded any previous week for several months, but with Friday and Saturday production considered, the total for the week will be limited.

CHICAGO

Blockaded railroad yards and heavy snow wipe out storage stocks. Weather conditions prevent deliveries.

Chicago was visited early in the week with a snow that drifted in many places to a depth of 5 ft. This blockaded terminal yards, and prevented deliveries to dealers until late in the week. With little coal available to the dealers the stock that he had accumulated during the previous week was used. The action of the fuel administration, in taking from several steam plants their storage stock for use by the dealers in emergencies, was unquestionably a wise move, and had the effect of preventing wide suffering. There is now in the various yards of the railroads several hundred cars of coal that is available for the relief of Chicago, and needs only to be moved to dealers' yards.

Saturday Chicago was in the grip of the severest blizzard that had struck this section for several years. Railroads were paralyzed, and wagon and auto traffic was an impossibility.

Very few cars of Eastern coal have reached this market during the past week, although City Fuel Administrator Durham has been promised a share from this date forward. So far this promise has not been cashed with results, but dealers hope that by the end of the coming week they will be getting more Eastern bituminous as well as hard coal.

Quotations in the Chicago market are as below, per net ton f.o.b. cars at mines:

MILWAUKEE

Coal and coke advanced 10c. to meet back war taxes on freight. Deliveries confined to 1-ton orders. Wisconsin coal must be released to the Northwest.

Milwaukee coal dealers have received directions to advance anthracite coal and

	Williamson and Franklin Co.	Saline and Harrisburg	Fulton and Peoria	Springfield	Carterville	Grundy, La-Salle, Bureau and Will
Steam and domestic lump, egg, nut, stove, chestnut and pea.....	\$2.65@2.80	\$2.65@2.80	\$3.00@3.15	\$2.65@2.80	\$2.65@2.80	\$3.35@3.50
Washed egg, stove and nut.....	2.65@2.80				2.65@2.80	3.35@3.50
Mine-run.....	2.40@2.55	2.40@2.55	2.75@2.90	2.40@2.55	2.40@2.55	3.10@3.25
Screenings.....	2.15@2.30	2.15@2.30	2.50@2.65	2.15@2.30	2.15@2.30	2.85@3.00
Washed slack.....	2.15@2.30				2.15@2.30	2.85@3.00

	Clinton and Sullivan	Knox and Greene	Eastern Kentucky	Pocah. and W. Va.	Penna.	Hocking	West. Va. Splint
Steam and domestic lump, egg, nut, stove, chestnut and pea.....	\$2.65@2.80	\$2.65@2.80	\$3.10@3.25	\$2.60@2.75	\$2.60@2.75	\$3.05@3.20	\$2.85@3.00
Mine-run.....	2.40@2.55	2.40@2.55	2.85@3.00	2.45@2.60	2.45@2.60	2.70@2.85	2.60@2.75
Screenings.....	2.15@2.30	2.15@2.30	2.60@2.75	2.10@2.25	2.10@2.25	2.55@2.70	2.35@2.50

coke 10c. to meet the war tax on freight covering all coal shipped since Nov. 1. Anthracite egg is now \$9.20; stove, \$9.45; nut, \$9.55; and buckwheat \$7.65. Coke is now \$10 for range and \$8 for egg and nut. A carrying-in charge of 50c. per ton is added by dealers.

Deliveries are now restricted to 1-ton lots and are then only made after satisfactory answers to a questionnaire as to amount on hand. Retail trade is practically at a standstill owing to inability to deliver because of blockaded streets following extreme blizzards. Only urgent cases are supplied.

Contrary to previous announcements, coal on Wisconsin docks may be shipped into other states. Fuel Administrator Garfield insists upon the enforcement of his order pooling the coal supplies of Wisconsin, Minnesota and the two Dakotas for distribution under the direction of District Distributor W. A. Grovermann of Minneapolis. The coal is to be distributed in 90 days at the rate of one-ninetieth per day. Gov. E. L. Philipp and State Fuel Administrator Fitzgerald made strong efforts to have the edict overruled, but without success.

ST. LOUIS

The coldest weather in 30 years prevailing, St. Louis came through with coal enough to take care of normal requirements. No outside coal coming in, railroads all tied up and mines idle. Steam plants somewhat short, but no actual suffering.

The past week was a disappointment in many ways, due almost entirely to the transportation problem. Some mines on the Illinois Central worked one day out of six. The L. & N. was almost as bad, and the other roads fell below their previous records.

The latter part of the week, on account of the storm, the situation in the Carterville field became critical and on Thursday a few mines worked, but on Friday and Saturday everything was idle. The snow not only kept the railroads from moving equipment but prevented miners from going to the mines, as electric lines were blocked and trains running five to ten hours late.

The greater part of the tonnage from the Standard field is going for railroad coal. There have been some minor troubles in the field during the past week and this has retarded tonnage, but not seriously.

The last two days of the week the entire field was practically tied up on account of the storm and it is doubtful whether the present week will see the improvement that it should.

The situation, however, as far as St. Louis is concerned, will be all right if all the mines get to working during the present week and the railroads take care of the coal offered. St. Louis weathered the storm all last week in fine shape, with a fairly good supply on hand and with a distribution proposition that was satisfactory to everybody.

There is no coal coming in from the East of any kind and nothing from Arkansas. If the river stays frozen, transportation will become congested over the bridges. The city is laying tracks for connecting the different roads on the east side and the west side so as to utilize the St. Louis free municipal bridge and thus eliminate the bridge arbitrary of 20c. a ton. Mayor Kiel and party returned from Washington with the assurance that the Government would put this into effect just as soon as connections were made. The Terminal Association backed by its supporters in E. St. Louis, are objecting to the use of the St. Louis free bridge for the haulage of coal into St. Louis. This in no way affects the City of E. St. Louis, only that it puts both cities on the same rates, whereas E. St. Louis now enjoys a 20c. cheaper rate.

Householders in St. Louis are in fairly good shape, excepting in the poorer sections, and municipal coal yards are doing reasonably good work and have a fairly good supply on hand.

Steam plants are not so well fixed, but will likely be able to manage to get through.

The Laclede Gas Co. found itself short of fuel and advised conservation of its supply. The St. Louis Fuel Committee ordered the Anheuser-Busch Brewing Co. to sell the gas company about 4000 tons of the Pittsburgh coal it has had in storage for 14 years. More will likely be taken if needed.

The prevailing market price per net ton f.o.b. mines is:

	Williamson and Franklin Co.	Mt. Olive and Staunton	Standard
Prepared sizes, lump egg, Nos. 1, 2, 3 and 4 nut washed and unwashed.....	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80
Mine-run.....	2.40@2.55	2.40@2.55	2.40@2.55
Screenings and No. 5 nut washed and unwashed.....	2.15@2.30	2.15@2.30	2.15@2.30

Williamson & Franklin Co. rate is 87½c.; other fields, 72½c.

KANSAS CITY

On Jan. 7 the visible supply of coal on hand with the Kansas City dealers was 15,222 tons, and the orders on hand were 10,728 tons, a better condition than has existed during any cold wave this winter. The supply of bituminous coal, however, is very light and users of the cheaper grades of fuel are having a hard time to keep supplied. Numerous Kansas towns are calling for coal from the operators' committee, which is notified daily by the state fuel administrator and which takes care of the shipping to these towns.

MISSOULA, MONT.

Coal prices under Government control show final reduction of from 25 to 30 cents a ton over prices of 1916.

The final setting of retail prices throughout the state shows that a reduction of from 25 to 30 cents a ton over coal prices of 1916 has been made by the fuel commission. The highest reduction has been made at Missoula, where the following schedule obtains: Owl Creek, \$9.20; Bear Creek, \$8.68; Diamondville, \$9.87; Roundup, \$8.47; Carney, \$9.09; Kool, \$8.64; Acme, \$9.19. These prices are for lump, mine run prices for Montana coal are 90 cents a ton less while slack prices are \$2.10 less. Dealers are allowed a margin of \$1.90 over the mine price of Wyoming coal plus freight and tax. As delivery charges are figured at about 90 cents a ton, the gross profit to the dealer is about \$1.00.

LEWISTON, IDAHO

Idaho consumers fear shortage if embargo is declared against Wyoming and Utah coals. Washington mines do not nearly supply demand. Retail prices are set.

The threatened embargo of coal shipments to this state from Utah and Wyoming is causing no little concern in the Northwest consumers, dealers and operators uniting in the opinion that a shortage will result as Washington and Montana mines cannot nearly supply the needs. If Washington could supply the needs of the state consumers would welcome the embargo, as the prices set by the fuel administrator for Washington coal is considerably lower than the prices for Utah and Wyoming coal.

A new scale of retail prices has become effective in this city, which is a fair example of the prevailing retail prices throughout the state. These are as follows: Rock Springs, lump, \$9.97; mine run, \$8.97; slack, \$7.21; Utah lump and egg, \$9.73; mine run, \$9.48; slack, \$8.72; Owl Creek lump and egg, \$10.07; Bear Creek lump and egg, \$9.81; slack, \$7.71; Chestnut lump and egg, \$9.71; Acme, Carney, Monarch lump and egg, \$8.72; mine run, \$8.72; Black Diamond, Renton, lump and egg, \$10.46; pea, \$8.95. Roslyn and Cle Elum grade, lump and egg, \$8.03; mine run, \$7.77; Newcastle nut, \$10.19; Roundup lump and egg, \$9.71; Big Horn lump and nut, \$9.82.

SAN FRANCISCO, CAL.

Reduction of 50 cents a ton on Utah coal has been ordered by Albert E. Schwabacher, fuel administrator for California in San Francisco. Maximum prices have been fixed as follows: Bituminous—Utah, \$14; Wyoming, \$14.50; Wellington, \$15; Colorado, \$16.20. Anthracite—Colorado, \$19; New Mexico, \$22; Pennsylvania, \$24. Screening, all grades, \$10.

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